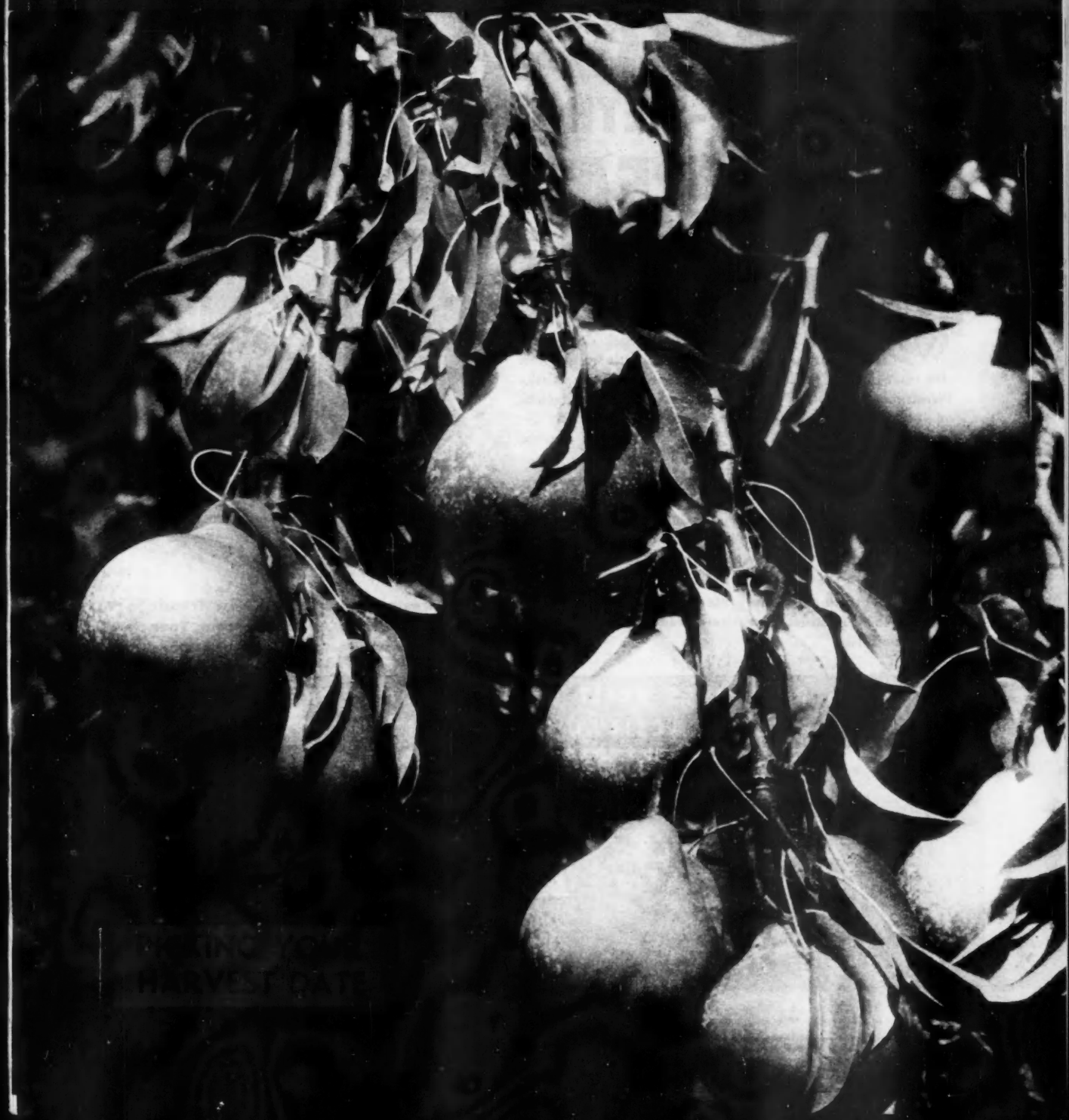
American Fruit Grower

SEPTEMBER • 1953



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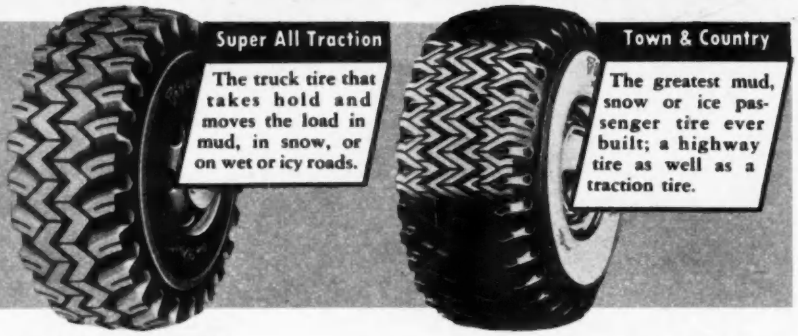
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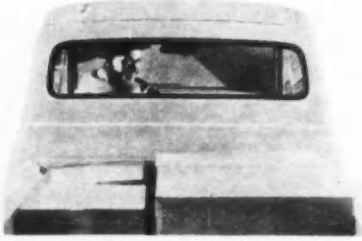

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LETTERS TO THE EDITOR

Clean Cultivation and Winterkilling

Dear Editor:

A recent letter in the "Letters to the Editor" column brings to my mind the interesting way my grandfather, who is now 85 years old, prevented winterkilling of his fruit trees in 1903. At that time he had an orchard of four-year old apple trees that had been seriously damaged by freezing weather the preceding winter. In the spring he discovered about 100 more trees that were badly damaged, also.

However, he found that the portion of his orchard covered with grass was uninjured. These trees were located on a steep hillside where the soil washed so badly that cultivation had been discontinued and the weeds allowed to grow around the trees. The rest of the orchard had been clean cultivated.

Thus, the following year he sowed oats in mid-summer, after the season's growth was completed, which prevented root killing in winter and also provided humus and prevented leaching of the soil by fall rains.

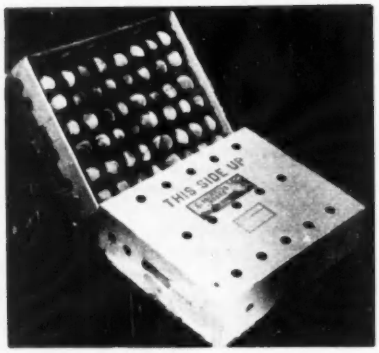
Hammonton, N. J. James Shoemaker, Jr.

Undoubtedly, ground cover protects roots from severe winter cold. On the other hand, excepting where extreme low temperatures occur over a period of time, penetration is not likely to be great. There is a chance that good air drainage on the "steep hillside" may have been fully as important, if not more important, than the ground cover. Both ideas are worth weighing.—Ed.

Cell Type Peach Lug

Dear Editor:

I have sent you a half-bushel lug of Halehaven peaches. The lug's upper layer shows our carriage trade pack—six trays containing eight peaches, each in corrugated cups. The lower layer shows our bulk pack, a cell divider holding 48 peaches or 96 for the complete lug. The lug can be packed in less time than the basket and with less expert packers.



The introduction of these two types has not been easy as the inertia of the commission merchants has been very great. But, we did make a beginning in the Washington, D. C., and Columbia, S. C., supermarkets. Some of the experts say it will be much easier next year. We have been plugging for this lug for the past 20 years.

We have a gift box holding one dozen fruits in cells and cups which is sent by parcel post. We have used this for over 15 years, and we think it is the granddaddy of the cell types.

Columbia, S. C. R. W. McNeely

To reader McNeely, who is a great booster of South Carolina peaches and an intrepid investigator, we send our congratulations for a superior peach pack. The half-bushel lug arrived in excellent condition, and we predict that when all peaches arrive at markets in this tasty firm-ripe stage American consumers will eat 100-million-bushel peach crops with no trouble. —Ed.

Porcupine and Deer Damage

Dear Editor:

I have a problem in trying to raise fruit trees. Between the deer and porcupines, it

seems to be almost impossible to get a tree to grow up. In the accompanying photograph you can see the damage porcupines did to a five-year old cherry tree in one night. The tree was attacked several more nights until every leaf was gone and most of the branches broken off; however, it is still alive.

I also have 75 pear trees which were untouched by porcupines until this spring. This year they were damaged so badly that some may not survive. I have put stove pipe around the base of every living tree for protection, and I have not seen one sign of damage from porcupines since, which has been two months.

I am still at a loss to know how to keep deer away. I have white cloth strips tied to the branches, but these seem to do no good. The fruit buds are constantly being clipped off. I have also tried tying moth balls on the trees, but that method has no effect, either.

Bangor, Me. Robert L. Soucy

Various repellants may be effective for a period. It is worth while to try some of them (see July Directory issue of AMERICAN FRUIT GROWER*). Many experienced growers will tell you that a strong, high fence is the only solution, and deer have been known to take a 12-foot fence. Perhaps our readers have some suggestions. —Ed.*

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PICKING YOUR HARVEST DATE

Know the signs that tell when apples and peaches are ready for harvest

By J. R. MAGNESS
U.S. Department of Agriculture

MOST state and federal grades for apples and peaches require that the fruit be "mature" when harvested. By "mature" is meant that the fruit will ripen with characteristic quality for the variety under the usual conditions of handling.

Fortunately apples and peaches do not need to be tree-ripe or ready for eating at the time they are harvested in order to develop satisfactory quality. Both of these fruits soften as they mature on the tree and this softening rate is accelerated after picking if the fruit is held at prevailing temperatures.

Numerous experiments have shown that peach varieties harvested at such a stage that four to eight days at prevailing temperatures are required for them to reach optimum eating-ripe condition will have satisfactory quality. Apples generally require considerably longer. Mature fruit of varieties such as Jonathan and McIntosh may require eight to 10 days after picking to reach prime eating condition when held at 60° to 70° F. Longer storage varieties such as Stayman or Rome Beauty may require two to three weeks.

The optimum time for picking apples is when the fruit will ripen with good quality and also be suitable for storage holding within the limits of the variety. For peaches the optimum picking time is when the fruit will ripen with good quality but is sufficiently firm to permit packing, shipping, and retailing without loss from over-ripeness.

It is widely recognized that some portions of the peach and apple crops are harvested too immature to meet the standard of characteristic quality for the variety. This condition prevails most commonly in the first of the fruit of highly desirable varieties to reach the market. Such first fruit often receives a substantial price premium; therefore the grower has an incentive to harvest as early as possible, particulary if he is in an early district.

State and federal inspectors have difficulty in administering effectively the maturity regulations for apples and peaches. We do not have in use at present objective tests for maturity of these fruits, i.e., tests that depend on a mechanical or a chemical measurement and not on personal judgment. For certain other fruits such objective tests have been developed and are used to advantage.

Thus with citrus fruits standards are based on the soluble solids (sugar) content and the acidity of the juice. With grapes also the soluble solids content of the juice, which can be mea-

sured objectively, is the basis of maturity regulations.

Similar-type tests based on the composition of the juice have not been satisfactory for peaches and apples. Such fruits are still growing at the time of harvest and the day-to-day changes in sugar content and acidity are too slight to be satisfactory as maturity standards.

With most of the older varieties of apples and peaches red color development has been an important criterion to determine when the fruit should be picked. On these varieties red color develops mainly as the fruit matures and by the time the fruit is sufficiently colored to meet grade and market requirements it usually is of satisfactory maturity.

In recent years, however, a number of highly colored and early-coloring peach varieties which develop extensive red color long before they are mature have been introduced. Similarly, fruits of some of the color sports of apples color well in advance of proper maturity for picking. Thus the development of red color is becoming less effective than formerly in preventing harvesting and marketing of immature fruits.

With apples the tendency of the fruit to loosen on the spur used to be an important criterion of maturity. This is still an effective indicator in orchards not sprayed with fruit-sticking sprays. However, the development of hormone-type chemical spraying to prevent harvest drop of fruit makes this test of little value for determining maturity in orchards that have been so treated.

Peaches will usually ripen with satisfactory quality if picked at the time the ground color, or unblushed portion, of the fruit begins to take on a yellow cast. Also the flesh of yellow-fleshed varieties should be distinctly yellow. While these color changes are very helpful in judging maturity, they are difficult to use as the basis of passing a shipment as satisfactorily mature or rejecting it as immature. The development of standard color charts with which fruit color could be compared would make this type of standard much more satisfactory.

For peaches the pressure test, a mechanical test of the pressure required to force a plunger of given dimensions into the fruit, appears to be a satisfactory criterion of maturity. Such a pressure test is in use in Ontario and is said to work well. Research by Dr. Mark H. Haller and associates in the Bureau of Plant Industry, Soils, and Agricultural Engineering indicates that this is probably the most feasible objective test to eliminate peaches too immature for satisfactory ripening.

With apples the pressure test is not of much value for determining picking maturity as the softening of the fruit on the tree is too slow and too variable. The ground color of the fruit, or the color of the unblushed portions, is valuable as a criterion for determining apple maturity, and color charts have been prepared to aid in that determination. Ground color alone is not fully dependable, however, as it will vary with the amount of nitrogen used in the orchard and to some extent with prevailing temperatures.

Another helpful index of maturity is the time interval that has elapsed from date of full bloom. The accompanying chart, taken from USDA Technical Bulletin No. 1003, indicates the normal number of days from full bloom (when the first petals drop) to suitability for harvest of several apple varieties. The solid black in the center of each bar covers the usual optimum period for picking while the cross-hatched portion at the left of the solid black indicates early-harvest time and that at the right of the black indicates late-harvest time.

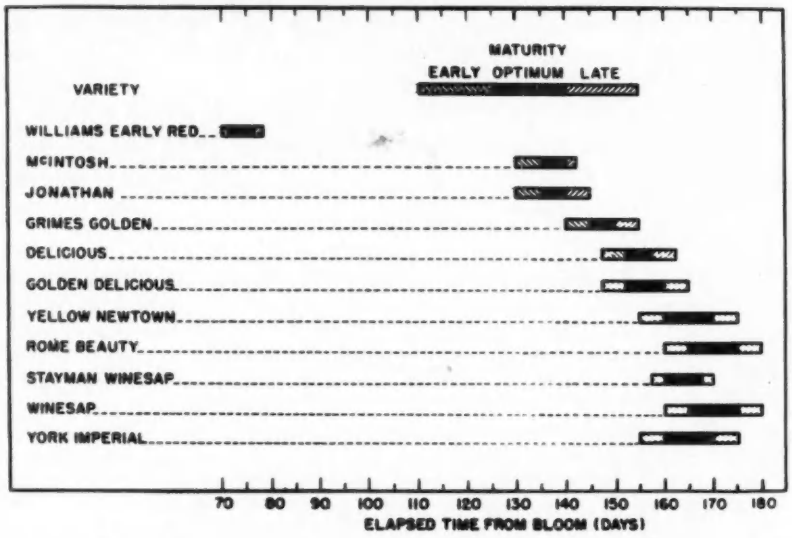
While these periods after bloom are helpful in determining probable harvest dates, they cannot be used blindly. High temperatures, particularly early in the growing season, will generally advance the date of ripening. The time period will usually be less on trees bearing a light crop than on those bearing a heavy crop. A very cool growing season will usually lengthen the period between bloom and maturity.

Most of the apple crop is now harvested in as nearly satisfactory maturity condition as is possible to obtain. Immature apples are undesirable from the standpoint of quality and if put in cold storage are subject to storage scald and shriveling.

Over-mature apples, on the other hand, are subject to water core and internal breakdown. It is unfortunate that we do not have a clear-cut objective test that will indicate when apples are at the maturity stage that is most desirable from the standpoint of both eating and storage quality.

Immature peaches are lacking in quality and often in size and color; over-maturity may lead to serious over-ripeness and loss during marketing. Objective tests for peach maturity that can be used to prevent shipment of immature fruits are becoming available. If the industry makes use of them, they will, we believe, eliminate to a large extent the relatively small quantity of very immature fruit which now reaches the market, particularly early in the season, and injures the reputation of all peaches. THE END

Chart showing normal number of days from full bloom (when first petals drop) to harvest of several varieties of apples.



MATURITY
Is the Peach Problem

The grower must weigh the relationship between eye appeal and shipping quality

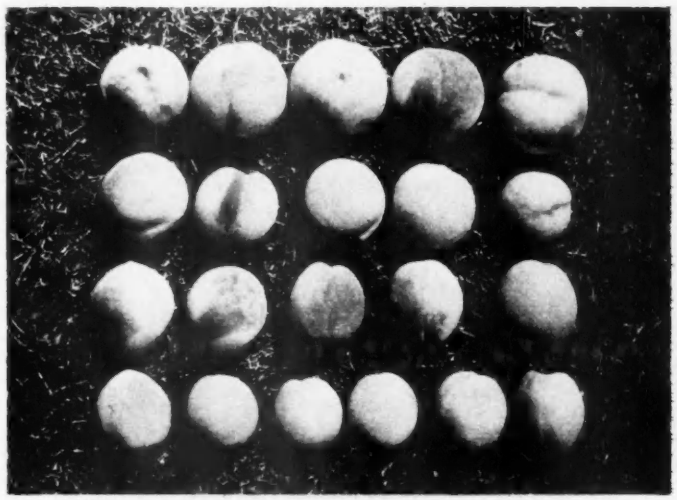
By M. J. DORSEY
Secretary, National Peach Council

THE facts to be dealt with in harvesting peaches can be briefly summarized along the following lines. In the first place, eating is the biggest job in disposing of a peach crop. More time is consumed, more people take part, and more people have to be pleased in this act than in any other. In the second place, it is now estimated that 80 or 85 per cent of our peaches are sold by the self-help method in the retail outlets. By this method a commodity must sell itself on the basis of eye appeal, quality, price, condition, or need.

Fortunately, when it is at its best, the peach is tough competition for any commodity. But when picked green in order to gain in "carrying capacity" it has low eye appeal in the retail markets and the consumer, being free to choose, moves on to the "best buy" in the store that day.

Let us look at the last 10 days the peach remains on the tree in order to see what inevitably occurs. As the crop comes on, all the peaches, even the most advanced ones, are green. As harvest period approaches, the terminal peaches and those with split pits are the first to take on color. The most advanced fruit then gradually changes from green to the hard-ripe stage.

At first one looks for the slight development of color and, in the yellow varieties, the slight yellowing of background color. These advanced peaches on the tree then pass rapidly from the hard-ripe to firm-ripe, then to tree-ripe and, finally, the soft-ripe phase. The interval between the stages mentioned above is from two to three days, as indicated in the table.



Advance in maturity of peaches up to soft ripe stage.

Coincident with this changing in color which reaches its fullest development in the soft-ripe peach—both in background and cheek coloration—comes an increase in the size of the fruit. A green two-inch peach, for instance, gradually increases within the ripening period at about the rate indicated in the table. Under western irrigated conditions the growth in size should be more rapid and pronounced than is shown here.

However, the grower should take into consideration the relationship be-

(*Continued on page 22*)

Relationship between maturity of peaches at harvest and other factors to consider in disposing of the crop

Range of maturity passed through in last 10-14 days	No. of days between stages of maturity	No. of days to ripen at 65-10° F.	Diameter at successive stages	Volume based upon 100 bu. green peaches	Firmness as measured by Ballauf ⅜" plunger	Handling range in days: Room Temp. 75-95° F.	Handling range in days: Hydrocooled to 45-50° F.	Shipping radius in miles	Consumer acceptance rating
Green		6–8	2 inches	100	15–18 lbs.	7–10	Too green for hydrocooling	2,000	1–0
Hard ripe	2–3	5–6	2 ⅛ inches	108–110	10–14 lbs.	6–10	10–21	2,000	5–9
Firm ripe	2–3	4–5	2 ¼ inches	110–115	7–10 lbs.	5–10	10–21	Hydrocooled and iced, 2,000	10–20
Tree ripe	2–3	1–3	2 ⅜ inches	115–125	4–6 lbs.	3–7	7–15	Hydrocooled and iced, 2,000	25–35
Soft ripe	2–3	0	2 ½ inches	125–130	2–3 lbs.	2–3	5–7	Local use	15–20

Success with
"PICK YOUR OWN" HARVESTING

Here are helpful pointers if you have not tried this popular way of selling direct to the consumer

By ELDON S. BANTA

"HOW can I get my fruit crop harvested in time!" is the cry of many, many growers. Someone, sometime, happened on the idea that maybe folks would like to come to the farm and harvest their own fruit. At any rate this practice is growing in importance, especially in the vicinity of the big industrial areas.

If you are considering letting the public harvest your fruit crop there are a few things you might keep in mind. To approach the problem scientifically, your first step is to survey the population within a 25-mile radius of your farm. How many people live there? How many families? Is it a young and growing community? Is industry expanding here? What are the general industrial wage rates? What are the prices of fruits in retail stores in season? What is the average quality of such fruit? How much of each kind of fruit is sold through regular channels during the season?

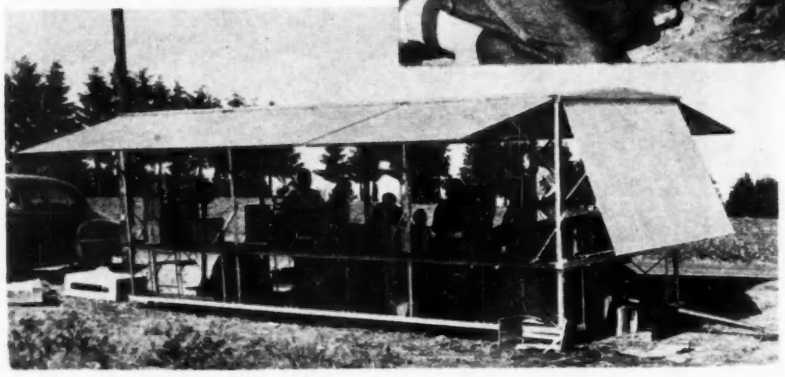
Then on the other side of the picture find out how much of a given fruit is grown in your area and how it is sold. Once you have a fairly good picture of your producing and consuming area, you are in a better position to predict the outcome of a pick-your-own venture than someone who jumps into it blindly.

What kinds of fruits fit into the practice of pick-you-own? It seems that almost any kind of fruit can be adapted. Strawberries and raspberries take the lead, with cherries and peaches following. The idea is just being developed with apples.

The intended use of the fruit helps to determine the success of public picking. For example, berries, cherries, and peaches make excellent frozen products and are especially delicious if frozen as soon as picked.

Your success in this field may depend upon how well you organize and supervise the pickers. Clear instructions should be given to pickers as to how, what, and where to pick. You are interested in the maximum harvest and the greatest number of satisfied customers. Careful instructions and considerate supervision can usually secure both.

Raspberries are excellent for self-pick harvest. Much of the 75-acre crop is harvested this way at Mumma's Fruit Farm, Dayton, O., where these boys are picking.



Several hundred "city" pickers come on weekends to Wampler's Fruit Farm, Dayton, Ohio, to pick strawberries. Harold Wampler, with his two sons, built this portable building where pickers come to weigh-in their field-ripe berries.

In berry fields some growers feel that one supervisor to 25 or 30 pickers is essential, while others can do the job with 50. The big job in watching the actual picking is to make certain that all ripe fruit is picked, and not just the large perfect ones.

Prices vary with place, methods, and abundance of fruit, as well as market price. Most growers request pickers to bring their own containers. These they weigh in with the weight

Dwarf apple trees like this Turley Winesap provide easy reach for pick-your-own harvesting. Here is a thought for the future.

Above—This girl picks sour cherries in C. C. Taylor Orchard, Albion, Mich. Taylor sold 25,000 pounds that way last year.

Left—Highway signs tell people they may pick their own fruit in Taylor's orchard.

Below—Tree-ripe peaches are best for freezing. These folks get them that way knowing that they will get high-premium flavor for winter months.

written on the container. When the picker leaves, the weight of his berries is taken and he pays so much per pound.

The difference between this price and the regular retail price is usually equal to the picking rate, or slightly more to cover the cost of the container. For example, strawberries may be selling at 50 cents a quart, and pickers are paid eight cents a quart for picking. Suppose a quart basket costs one cent. Then if your pick-your-own customers are picking in quart containers, you would charge them 41 cents a quart.

Many variations of this exist. Some charge a flat rate throughout the season, others lower the price during the peak of harvest so as to encourage heavy picking. The tail end of the crop is frequently sold at a low price because of small size and lower quality of fruit.

You have to get people coming to your fruit farm, so some sort of publicity is necessary. Local newspapers and radio stations are used by many to give the public dates and time of day to come for a particular fruit harvest. Roadside directions are useful and should be attractive.

You can find that pick-your-own harvesting is a pleasant and satisfactory way to sell your fruit crop if you are careful, considerate, and do a little planning. THE END

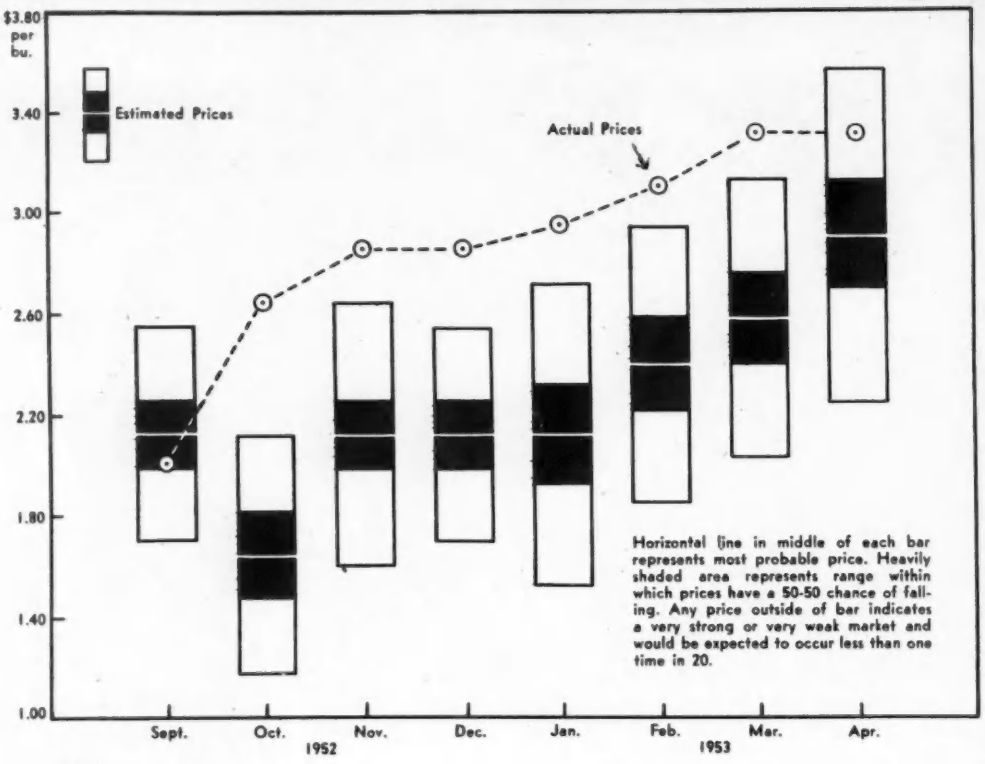


Figure 1 — Estimated and actual monthly farm prices of Michigan apples, 1952-53.

Predicting Changes in APPLE PRICES

A method which has proved right 24 out of the last 26 years has been developed to forecast coming apple price changes

By L. L. BOGER
Michigan State College

ARE you going to sell your apples soon after harvest this year, or are you going to store them? At this stage in the game your answer might be any one of the following:

1) I don't know yet.

2) I never gamble on the market.

3) I have the storage and I might as well fill it.

4) I don't think storage pays.

5) I always store.

If your answer is similar to one of these, you are no different from a lot of other growers—including those in Michigan. But Michigan growers got interested in this question and asked whether there was a reason for prices acting as they had. Michigan State College discovered that there was.

In fact, had Michigan growers known the relationships the college found, they would have had the right answer to the question 24 out of the last 26 years. Not a bad batting average! Let's see how it was done.

The actual level of prices in any one season as compared with another has little to do with whether or not it will pay you to store. It is the *change* in prices as the season pro-

(*Continued on page 26*)

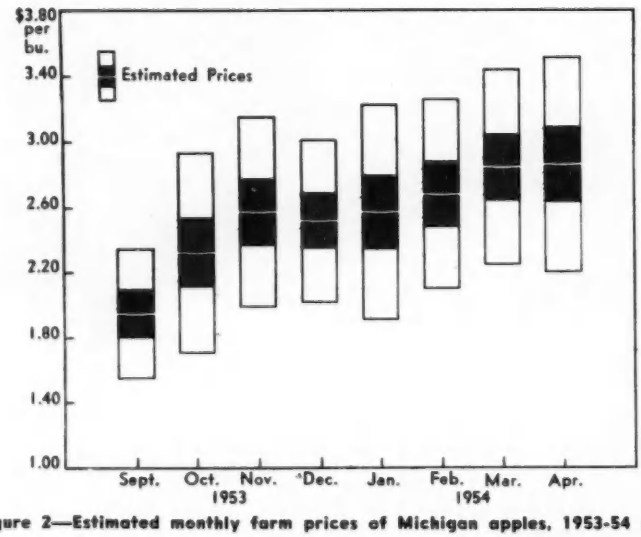


Figure 2—Estimated monthly farm prices of Michigan apples, 1953-54 season.

State NEWS

- **Oregon Growers Experience Worst Scab Year in Two Decades**
- **"Stericooled" Peaches from Tennessee Rate Tops in Market Quality**

OREGON—Continued wet weather gave apple scab the strongest toehold it has had in Oregon for 20 years, according to Dr. J. R. Kienholz, plant pathologist at the Mid-Columbia Experiment Station, Hood River. Dr. Kienholz spoke to about 200 growers at the experiment station's first full-fledged field day August 5. Growers who had applied a protective spray before the heavy rains in May suffered little trouble, he said. He explained that the only way growers could forestall the disease was to watch long range weather reports for forecasts of rain and then to spray with ferbam or zeram.—*Robert Birdsall, O.S.C. Information Spec., Corvallis.*

CALIFORNIA — A cannery workers' strike just as the peach crop was ready for harvest nearly spelled disaster for California apricot and peach growers this year. The workers who walked out were members of the Teamsters' union.

Apricot growers suffered some loss, and the freestone peach crop, which ripened ahead of the clings, had to be diverted to the fresh markets. This glutted the fresh market and caused a demoralization of prices.

Pear growers, who were in the midst of price negotiations at the time, were placed in a bad position, and the Cling Peach Association had to lower its price to the cannery from the previously agreed $58 a ton to $55 a ton. The new price is 16 per cent below last year's.

Growers thought that this move was an effort of the canners to make growers pay for the last-moment wage increase forced by the cannery workers.

KENTUCKY — Probably the cleanest peach crop ever produced in this state was grown this year, and the big half crop sold at satisfactory prices. Parathion kept the fruit worm-free and therefore also free of brown rot.

Several more growers took advantage of the "pick your own" method. They solved the climbing problem by attaching pint cups to four- to five-foot poles, which made picking easier, especially for women customers.

Apples are sizing up well, but a combination of dry weather, second brood codling moth, and late scab here reduced the crop. —*W. W. Magill, Sec'y, Lexington.*

TENNESSEE—Except for the southern tier of counties, Tennessee peach growers had exceptionally good crops and experienced little marketing difficulty. The quality of peaches reaching Nashville stores bearing the "Stericooled" stamp is splendid and, strictly from the consumer's viewpoint, these are the best "shipped" peaches we have seen anywhere.—*A. N. Pratt, Sec'y, Nashville.*

NEW YORK—After a month's severe illness, Dr. Percival J. Parrott, pioneer entomologist, died recently at Geneva. Dr. Parrott was a former director of the New York Experiment Station, Geneva.

More than 100 New York Horticultural Society members and their friends went on the society's summer tour. They visited orchards in Ontario, Canada.—*Daniel M. Dalrymple, Sec'y, Lockport.*

KANSAS—Luck has been against the apple crop in this state, with harvests greatly reduced in the southern section by frost and drought damage, and in the eastern part by heavy June drop. Also in the eastern section moist weather made scab a problem, and hot weather has encouraged codling moth. Many growers are willing to settle for a good half crop, except in Doniphan County, where conditions were better.

The peach crop made a better showing, with almost a bumper crop in Wyandotte County. However, crops varied from light to virtual wipeout in the orchards around Wichita and in the Arkansas Valley.—*H. L. Drake, Sec'y, Bethel.*

IOWA—Growers from this state made a two-day visit to Missouri, where they visited the 250-acre orchard of the Peters brothers of Waverly and where, on August 3, they attended an Orchard Field Day sponsored by Sterling Evans. The Field Day consisted of tours of the 100-acre Evans orchard with discussions on the use of various chemicals, orchard sprays, weed control sprays, and the use of weed and brush cutters. The Field Day was attended by about 200 people representing five states.

Fire blight appears to be the No. 1 problem in Iowa this year. Scab is also prevalent.—*R. Glenn Raines, Sec'y, Des Moines.*

VERMONT—Increased fruit size and quality have offset what looked like a light apple crop earlier this season. Rains during the first week of August broke an extended dry spell and fruit sized well.

A tour to Quebec Province, Canada, proved to be a highlight of the summer for Vermont apple growers. On August 6 they visited the Frelighsburg-Farnham area where they saw plantings totaling 125,000 trees, all of which had been planted since

(*Continued on page 23*)

FRUIT PEST HANDBOOK

(TWENTY-SIXTH OF A SERIES)

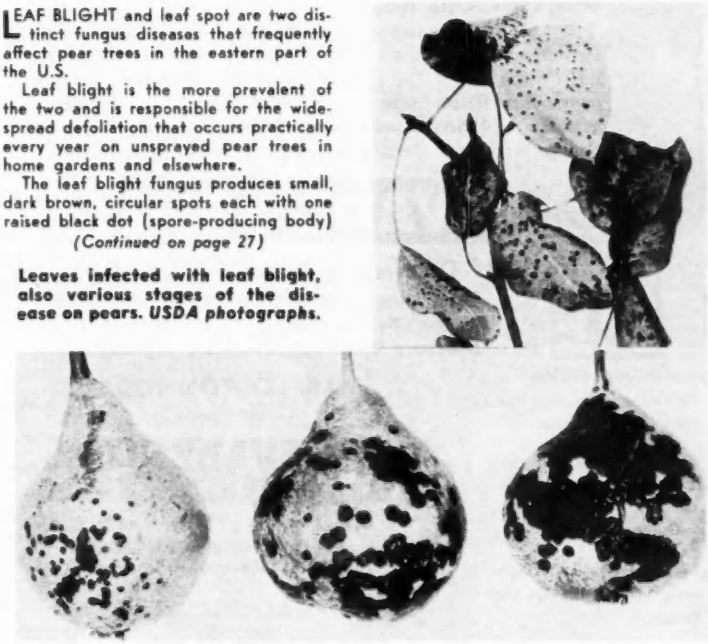
LEAF BLIGHT AND LEAF SPOT OF PEAR

LEAF BLIGHT and leaf spot are two distinct fungus diseases that frequently affect pear trees in the eastern part of the U.S.

Leaf blight is the more prevalent of the two and is responsible for the widespread defoliation that occurs practically every year on unsprayed pear trees in home gardens and elsewhere.

The leaf blight fungus produces small, dark brown, circular spots each with one raised black dot (spore-producing body)

(Continued on page 27)



Leaves infected with leaf blight, also various stages of the disease on pears. *USDA photographs.*

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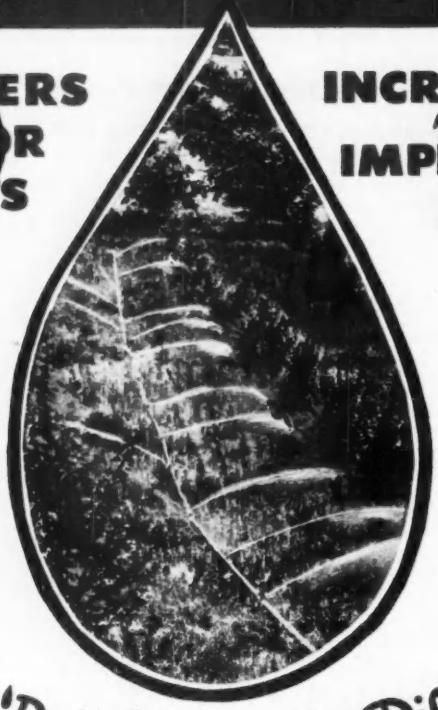

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THE QUESTION BOX

Where can I buy fibreboard cell containers for peaches?—*Texas*

The following companies advertise fibreboard boxes in AMERICAN FRUIT GROWER: Fort Wayne Corrugated Paper Company, 130 E. Douglas Ave., Fort Wayne 1, Ind.; Gaylord Container Corp., 111 N. Fourth St., St. Louis 2, Mo.; Fruit and Produce Packing, Inc., 700 W. Morris St., Indianapolis, Ind.; and Wabash Fibre Box Company, Terre Haute, Ind.

Is there any difference between the ascorbic acid (vitamin C) content of fresh orange juice and the frozen concentrated product?—*Florida*

The average content of ascorbic acid in fresh orange juice is higher than that of the frozen concentrated product. From the beginning of the orange season to the end, there is a marked decline in the ascorbic acid content. Early in the season oranges are high in ascorbic acid and low in soluble solids. For this reason these fruits do not make as good a frozen product as later ones do. Thus, the frozen concentrated orange juice excludes the fruit highest in ascorbic acid. However, the frozen product is still an excellent source of ascorbic acid. One can (six fluid ounces) is estimated to contain 3.8 times the recommended daily requirement for an adult man.

Are sealed film liners recommended for apples?—*Ohio*

Fisk Gerhardt of the USDA at Wenatchee, Wash., has done considerable work on sealed film liners. He reports that results with apples other than Golden Delicious have not been worthy of commercial interest. With Golden Delicious, however, there have been many benefits from the use of Pliofilm and Polyethylene films. Prevention of loss of moisture and preservation of freshness have been outstanding.

I recently sent for some apple trees from Italy. They were shipped by air and are now in the Restricted Cargo Section of the Custom House in New York City. The Custom House refuses to send them to me and wants them destroyed or re-exported. What can I do?—*Minnesota*

W. E. Whitehouse, senior horticulturist with the USDA, was kind enough to volunteer his help, and the trees were released for growing in quarantine at Glenn Dale, Md. Growers will be interested to know that introduction of most fruit trees from foreign sources is prohibited by law except when permit is secured for growing under quarantine until released.

Where can I get some plants of the tropical black raspberry, Mysore?—*Florida*

Three nurseries you can write are: Newcomb Nursery, Route 2, Box 591, Homestead, Fla.; Sherry Nursery, Route 1, Box 498, Homestead, Fla.; and Pinkhouse Garden, 4431 N. W. 7th St., Miami 34, Fla.

American Fruit Grower
WESTERN SECTION

Real quality with the Santa Rosa plum develops only with the darker shades of red color.

WESTERN PROBLEMS OF FRUIT MATURITY

By FRANK W. ALLEN
University of California

The major bottleneck of distance from market is gradually being licked by changes in harvesting and handling

THE ultimate aim of all commercial fruit production is profit, and continued profit from sales must be based upon satisfied customers. Where consumers are close to production centers the marketing problem is relatively simple. It is not so with western fruit growers who pack and ship trainloads of fresh fruit to eastern consuming centers 2,000 to 3,000 miles distant.

First of all, the fruit must arrive on the terminal markets—eight to 10 days after being harvested—in a sound, firm, attractive condition. Subsequently, in most instances, it is expected to ripen with dessert quality sufficient to induce consumers to make repeat purchases. In this general marketing problem, the question of fruit maturity at harvest and its stage of ripeness upon arrival are important factors.

Maturity, as it applies to fresh fruit, is strictly a relative term. Related to time of picking, it refers to that stage of development at which the fruit will satisfactorily complete its ripening process after being removed from the tree or vine.

For canning, freezing, or as fresh fruit on local markets, there is little or no time for post-harvest ripening. Such fruits, therefore, should be firm-ripe to ripe when picked. For long distance shipment much variation exists in maturity between different fruits. Grapes, berries, figs, and oranges are not considered mature and are not harvested until ripe. If picked before this time, they fail to ripen with acceptable quality and by definition are immature.

Cherries and certain varieties of plums, such as the Tragedy and President, are likewise not harvested until they are approaching full color. The Beauty plum on the other hand is considered mature when showing only a slight red tip. Wickson, another plum variety, full red when properly ripened, is shipped when turning from green to straw. Pears and apples represent fruits which may be harvested even relatively earlier in relation to their normal ripe condition.

In addition to these variables there are others which may characterize fruit grown in different districts. Bartlett pears produced in California under coastal temperature and humidity influences differ in texture, composition, and coloring from those grown in the hotter, drier interior valleys. Standards and regulations governing harvesting must be somewhat flexible in order to apply to each district.

Maturity indexes used include color, firmness, soluble solids, sugar-acid ratios, and days from full bloom. Some of these are used with one

fruit and some with another and the determination of the most satisfactory and equitable measure is one of the most perplexing maturity problems.

Because immature harvesting results in a loss of tonnage to the grower, poor quality to the consumer, and ultimately in poor returns and loss of markets, efforts are made to avoid it. The fact remains, however, that much California fruit is shipped before reaching sufficient development to insure satisfactory quality. Several factors are responsible:

1) California produces early fruit. 2) Early fruit meets little if any competition on the markets. 3) Early fruit —in relatively limited quantities— always brings maximum prices. 4) Early harvesting permits a longer picking and shipping season. 5) Different districts and different shippers vie with each other as to which will start the shipping season. 6) Wholesale receivers and auction buyers, whose interest is in fruit buying and selling rather than in consumption, pay highest prices for most fruits which arrive several days in advance of prime eating. Soundness and firmness with not too much color development are essential. Soft or fully colored stone fruits are judged "overripe" and the returns are reduced accordingly.

Whether or not fruit arrives "overripe" is dependent not only on its degree of maturity when harvested but upon such factors as the amount of fruit arriving on a given day, the day of the week, holidays, and the general market demand.

As harvest season for any fruit advances, the volume to be handled and shipped increases. With increasing temperatures, ripening may occur so rapidly as to overtax existing packing or shipping facilities. In such cases some fruits may actually be ripe upon arrival.

Although fruit is harvested at a maturity consistent with the best judgment of growers, its ripeness upon arrival may vary because of differences in time and of temperature in transit. Growers usually have no advance information as to whether their fruit is destined for markets four or five or eight to 10 days away. Neither do they always know in advance the type or condition of refrigerator car in which it is to be loaded.

For fruit shipment, older non-fan cars are now rapidly being replaced by the newer, better insulated fan-type car insuring both lower and more uniform temperatures throughout the load.

Type of icing services—whether "standard" or "modified" refrigeration—may be specified by shippers. Early in the shipping season when fruit is less mature and there is relatively little of it on the markets, less refrigeration is needed than later. Early shipments of Bartlett pears from California will not ripen much in eight to 10 days with transit temperatures of 45° to 50° F., whereas a week or 10 days later temperatures of 35° to 40° F. might be necessary to prevent "overripe" arrival.

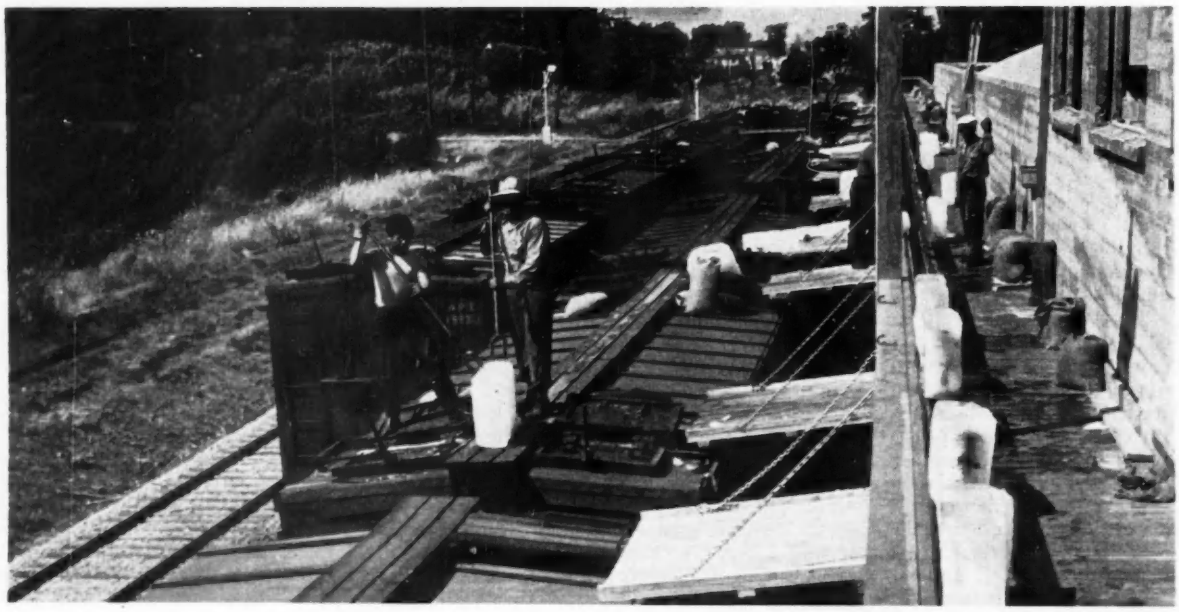
In 1869, the first year of operation of the railroad in California, 33 cars of fruit were shipped to eastern markets without benefit of ice. Seventeen years later the first refrigerated shipment traveled eastward, and by 1951 shipments to the East totaled 273,000 cars of fruit and vegetables. The interests of producer and carrier are interrelated and inseparable.

Experimental work and shipping tests of various fruits from the western states has resulted in much improvement in determining optimum maturity levels for eastern shipment. Greater care in handling in the orchard and packing house, more rapid precooling, better refrigerator cars, and faster service are making it possible to ship somewhat more mature fruit than previously. Changes in fruit harvesting and in methods of handling come gradually but advances are being made and better quality is now on the way.

Much of the effort by growers to deliver to the consumer fruit that is really good to eat may, however, be nullified by improper or unsuitable handling in the wholesale and retail stores. Dealers realize the necessity of controlled temperatures for holding and ripening bananas, but most of them seem to feel that similar facilities are unnecessary for deciduous fruits which also ripen eight to 10 times as rapidly at 75-80° F. as they would under refrigerated temperatures of 35-40°F.

Bartlett pears, preferred by the trade when only "turning" in color, need a ripening period of several days after their arrival in the markets. Optimum ripening temperature is between 65° and 70° F. and if held or exposed for sale for any length of time either above or below this range their general quality is impaired.

When wholesale and retail stores appreciate these facts and discard their sidewalk or backroom storage in favor of controlled humidity temperature ripening rooms consumers may expect to purchase fruit with quality comparable with its excellent appearance. THE END



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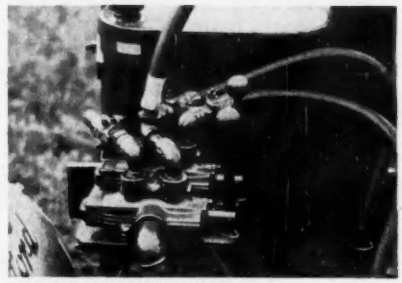
Canners prefer pallet method . . . it speeds operation, cuts labor cost.



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AUTUMN WEATHER *for the* WESTERN STATES

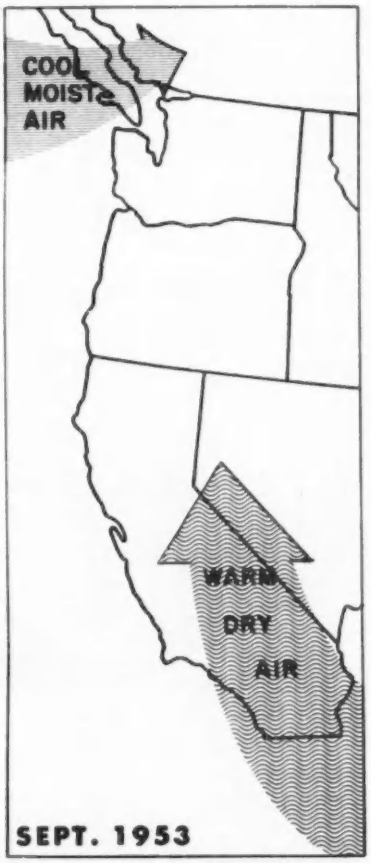
Forecast for California is favorable with a late harvest season predicted for the states of Washington and Oregon

By IRVING P. KRICK
Meteorological Consultant

"Season of mists and mellow fruitfulness . . ." Keats

THOUGH spring and summer are important seasons to the rancher, it is the fall that makes or mars the fruit and nut crop and either fulfills or turns to gall his harvest hopes. September, October, and November represent the culmination of his year's expenditure of time, care, energy, and wealth. On the weather of these months depends his success or failure to achieve return for outlay, reward for good husbandry, and satisfaction for honest toil.

As regards the weather and its effect on the crops, one might usefully quote the old adage, "One man's meat is another man's poison," for while sunshine and high temperatures give the grapes their sweetness, they at the same time scald the tomato, burn the walnut and citrus, and rob the apple of its color.



Storm belts and dominant air currents expected during the month of September.

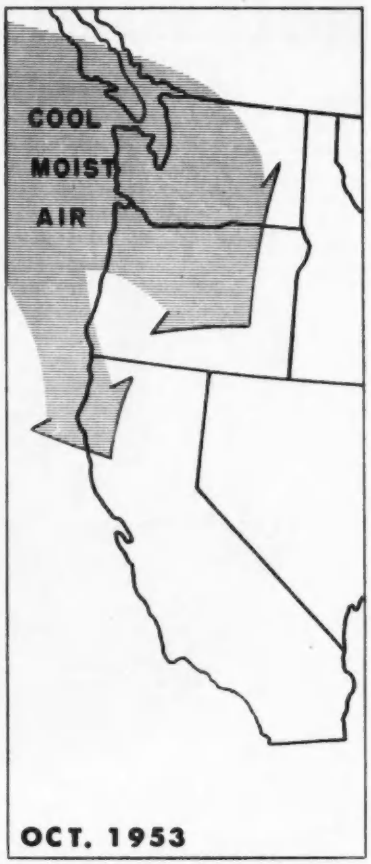
NORMALS OR AVERAGES of Temperatures and Precipitation in the States of Washington, Oregon, and California

		Sept.	Oct.	Nov.
WASHINGTON				
Seattle	Temperature	59	52	44
	Precipitation	1.65	3.32	4.55
Spokane	Temperature	60	49	47
	Precipitation	0.93	1.33	1.88
OREGON				
Portland	Temperature	64	56	47
	Precipitation	1.83	3.53	6.05
Medford	Temperature	64	54	44
	Precipitation	0.65	1.91	2.67
Baker	Temperature	56	47	36
	Precipitation	0.91	1.05	1.70
CALIFORNIA				
Red Bluff	Temperature	75	65	55
	Precipitation	0.33	1.49	2.27
San Francisco	Temperature	62	60	55
	Precipitation	0.11	0.92	1.62
Fresno	Temperature	74	64	54
	Precipitation	0.05	0.66	0.75
Bakersfield	Temperature	76	67	56
	Precipitation	0.07	0.57	1.03
Los Angeles	Temperature	71	67	62
	Precipitation	0.27	0.50	1.03

Normals taken from "Annual City Letters"

Indeed, it is impossible to obtain the perfect weather requirements for every crop simultaneously. The best that can be hoped for is that a knowledge of conditions likely to develop may enable the rancher to make the necessary adaptations in his farming practices by increasing his awareness of potential dangers. "Forewarned is forearmed . . . !"

Last year early fall was dry and hot. With the exception of a few late apples and walnuts, fruit was harvested and much of it dried and packed by late October. What will be its fate this year?



Storm belts and dominant air currents expected during the month of October.

In **September** we are promised above average temperatures—only a little above normal in Washington, west Oregon, and northwest California, but up to 4° F. above in the east of Oregon and most of eastern California. Precipitation throughout the West will be subnormal. (See table of Normal or Average temperatures and precipitation.)

With the hot, dry weather the grape and apple harvest will proceed apace in Washington, and some packing will be completed before the end of the month. Grapes should be excellent, but apples may be somewhat dull in appearance.

In Oregon September will speed the peach and prune harvest, and apples and pears will ripen rapidly.

In California conditions will be excellent for harvesting, ripening and drying, and a minimum of damage will be done by showers.

October temperatures, lower than those of September, promise also to be lower than average. Precipitation will likely be above normal in all but western and southern California. This will mean a slowing up of ripening and harvesting in Washington and Oregon, with a consequent improvement in apple color. Filberts should be

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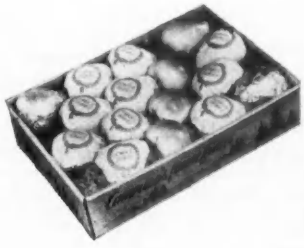
Pinnacle Orchards, Medford, Oregon, growers and packers of fine fruit . . and nationally known for the famous, "Fruit O' The Calendar Club" gift boxes are enthusiastic users of International Stapling Machines. They report better closures, higher production, lower costs, reduced fruit damage, less pilferage, and better working conditions. Here's what Dan Hull, Pinnacle's assistant manager has to say about International Stapling Machines:



"We purchased our International Stapler late in 1951 and are very pleased with its performance and resulting rapid, efficient closing of our gift boxes and the considerable savings in packing costs.

"Prior to 1951 we used four men to close our gift boxes . . since 1951 we've increased our daily production and use but a single operator for a shorter period of time than was required for any one of the four previous operators.

"Damage to the fruit during the closing operation is negligible and has been reduced since we do not have to turn the box over to close it . . nor do we have to exert extra pressure on any portion of the package. We believe this closure has lessened the amount of pilferage which can occur in transit."

From coast to coast, more and more fruit and vegetable growers are closing their cartons better, faster and at less cost with International Stapling Machines. Ask for Bulletin C/201.

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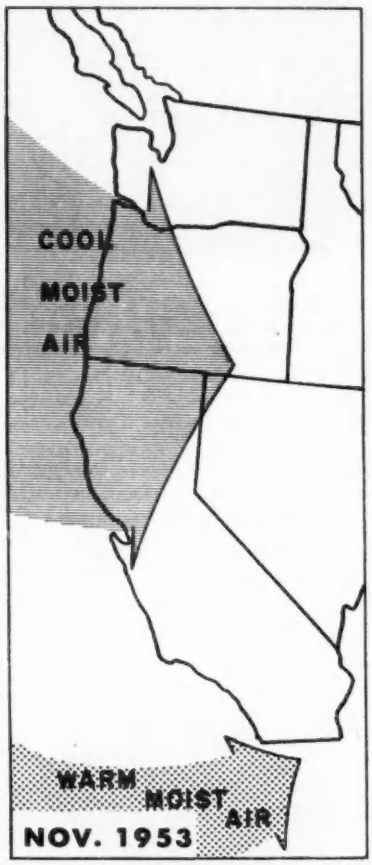
3-53

ready for gathering by about mid-month.

Occasional showers will necessitate rolling and stacking raisins to prevent damage to drying crops in the San Joaquin Valley. But generally speaking, October will be a favorable harvest month in California. The weather should enable most of the grapes to be safely harvested by the end of the month.

November temperatures are expected to be subnormal and precipitation above normal throughout the West. Apple and pear harvesting will continue well into the month in Washington and Oregon. Rain will hamper the olive harvest in California but will help to shake the walnuts from the trees and split their hulls.

To sum up, the weather forecast for autumn, 1953, suggests that conditions will be generally favorable for



Storm belts and dominant air currents expected during the month of November.

the fruit and nut harvest in California; but in Washington and Oregon, owing to rain and cool temperatures, the season will be somewhat retarded. Harvest will continue into November for many of the later varieties and will thus be in marked contrast to the earlier harvest in the northern states last year. THE END

Pacific NEWS AND VIEWS

New Pear

Walter Eller, Yakima, Wash., orchardist, is beginning to reap the fruit (in this case, pears) of 11 long years of work and frustration in the pioneering of a new Bartlett-type pear. Growers are beginning to accept the Eller pear, and nurserymen are planting test plots for study. The Eller pear has a lot to live up to. It is said to taste better than a Bartlett, mature two weeks earlier, be resistant to blight and cold, and the trees spread better than Bartlett, produce more and larger fruit than Bartlett, and produce the first year.

Thornless Evergreen blackberries have responded favorably to growth regulating sprays in tests at Oregon Agricultural Experiment Station. OSC horticulturist Dr. Quentin Zielinski reports as high as 25 per cent increase in berry size on irrigated plots with a combination spray of beta naphthoxyacetic acid and parachlorophenoxyacetic acid. The spray showed no effect on berry flavor, sugar content, color, or vines when properly applied.

Job Surplus

"Jobs we can't fill; that's our graduation story every year," says Dr. Warren P. Tufts, chairman of the department of pomology, University of California, Davis. "If more people knew what the word pomology means, maybe the science and practice of fruit growing would attract more students . . . Trained people are always wanted in the fruit and allied industries—in growing, fertilizer and spray chemicals, inspection service, canning, quick freezing, and shipping. At all times the department of pomology has standing requests for promising personnel. Some year we hope we'll be able to supply the demand."

Fall spray applications of boron seem to be the answer to a pear disease called blossom blast or dieback which has caused the loss of many thousands of boxes of pears in Clark County and the White Salmon area of Washington. The disease, which apparently is due to a boron deficiency in the trees, causes the blossoms to dry up and thus the trees to have no fruit. Horticulturist D. F. Allmendinger, plant pathologist Folke Johnson, and chemist Vern Miller of Washington State College in orchard tests in 1951 and 1952 applied a boron spray to affected pear trees in the fall. The following spring the treated trees showed no signs of the disease. It is recommended that trees be sprayed after harvest. The research workers use one pound of Polybor or three pounds of borax in 100 gallons of water. It takes between five and 10 pounds to cover an acre of trees, and the estimated cost of completely eliminating the disease is about a dollar an acre.

Thirty years of observation and experiments on the behavior of four rootstocks with various stone-fruit varieties is now available in a new University of California bulletin entitled, "Rootstocks for Stone Fruits." It may be had without charge by California growers from their local farm advisor's office.

A new record was set this summer in the shipment of Brock Red Thompson Seedless grapes from El Centro, Calif., to New York. The truck left El Centro on a Friday at midnight and arrived in New York a little after midnight the following Tuesday. Tom Kovacevich, New York representative of the famous Brock brands, said the load carried exceptionally well, there being no breakage or cover bruising. Temperatures in the truck were kept at approximately 40° throughout the cross-country trip.

HANDY ANDY

Strawberry picking is easier when pickers can use this lightweight aluminum cart. Shown above is Frank Fujita holding the aluminum model which will go into production as soon as materials are available. A wooden model is seen on the ground awaiting boxes of fresh-picked berries.—*F. Hal Higgins.*

In July, north central Washington welcomed back after an absence of 32 years, William L. Jonson who started some of Wenatchee's first orchards. He came to the Wenatchee Valley in 1906 as a consulting horticulturist from Washington State College. In 1907 he helped Wenatchee win national fame for fruit production when he worked on the display of a carload of apples that took the blue ribbon in the first national apple show in Spokane.

Research workers and orchardists interested in the artificial pollination of fruit trees will be glad to learn that no elaborate methods are required to store pollen. Hundreds of samples of deciduous fruit and olive pollen have been stored satisfactorily from one season to the next in an ordinary home freezer at temperatures ranging close to 0°F.

Wenatchee fruit shipper and exporter, Paul Thomas, is back from a European tour. He reports that the demand for Northwest apples is as great as ever, but that exporting is still handicapped by currency exchange which is a government problem and not one the individual can handle.

Idaho Joins NAI

Idaho growers and shippers, representing a high percentage of the state's apple production, have voted to join the National Apple Institute and the National promotion program. This action was ratified at the summer meeting of the Idaho Horticultural Society through which its grower-shipper members will carry their National membership.

Sawdust as it comes from the lumber mills has very little soil building value, but sawdust made into a compost by treatment with anhydrous ammonia, phosphoric acid, and a wood decaying fungus is proving to be a means of replenishing the soil with the organic matter so frequently lost through erosion or cultivation.

Safe Insecticide

Malathon, as reported by the USDA, "is one of the safest insecticides to handle." It is more toxic to insects than to mammals. The following tabulation gives the toxicity of malathon as compared with that of other materials. These toxicities are based upon laboratory tests on small animals.

Compound	Highest Dietary Level Without Gross Effect PPM
Malathon 99 plus % Tech in corn oil	5000
Malathon 90% Tech in corn oil	1000
DDT	50
Pyrethrin	1000
Rotenone	25
Lindane	50
Toxaphene	100
Parathion	10

Al Stratman, almond grower in the Antelope Valley, Calif., built an electric huller for his own crop because none of those on the market quite suited him. Its capacity, he claims, is 1,000 pounds of dry nuts or 600 pounds of green nuts an hour. Parts from several old autos and an old huller went into its construction.

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"The 'Baby BEAN' *(Model 24) is small enough to get through the orchard without damage to the fruit."*

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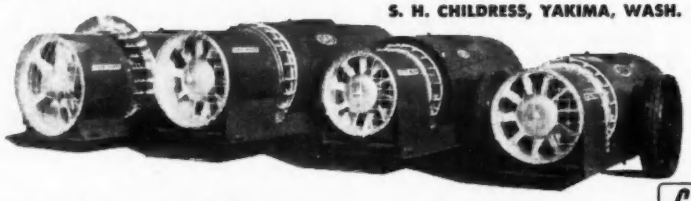

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WASHINGTON FRUIT LETTER

- **Economic Prospect Good for Next Four Months**
- **Horan Seeks Reopening of Foreign Markets**

By LARSTON D. FARRAR

Washington Correspondent, American Fruit Grower

THE nation comes into the early fall period at the peak of the post-war prosperity period, but there are few soothsayers here who will predict what the future holds, economically.

It is generally agreed that the last four months this year will be as good as, and perhaps a little better than, the first eight months. But economists are wary, at this stage, about forecasting next year's trends.

Gross national product, the market value of the nation's output of goods and services, now is at the annual rate of about $375 billion. This is appreciably higher than the first quarter rate of $362 billion.

Employment in late summer stood close to 62.3 million, not appreciably different from what Secretary of Labor Martin P. Durkin last spring predicted it would be. The average weekly factory pay envelope holds some $73—or $13 more than it contained three years ago—and now stands at the highest peak in American history.

Personal income of all Americans stands at an annual rate of $286 billion, which is much higher than it was last year at this time.

The outlook for fruit growers, from the standpoint of disposal of their crops and at a fair price, seems to be very good for this last four months. The problem on fruit farms is not so much selling the produce, but finding ways of gathering and preparing the crop more economically so that a profit worth having will be forthcoming.

SECRETARY of Agriculture Ezra Taft Benson, who has had a hard row to hoe ever since taking office, in view of falling farm prices, has announced here that he and his top officials will spend this late summer and fall working feverishly to reorganize and streamline the USDA, as Congress gave him permission to do.

At the same time, Representative Clifford R. Hope (R.-Kans.) is holding open meetings for farmers from coast to coast in what has been termed "Operation Cracker-barrel," to learn what farmers really want Uncle Sam to do to stabilize the rural economy and to insure the farmer a continuing equitable share of the national income.

Members of the House and Senate, regardless of party, sincerely want to find out what can be done about formulating a farm program that can be followed for a long time, without constant improvisations. No problem in government ever is "solved," for there are continuing changes and complexities in every field. Yet, the "farm problem" seems to be the hardest nut of all to crack.

What all this means, of course, is that the administration is extremely fearful that the continuing slide of prices on the "basic" commodities—wheat, corn, cotton, etc.—and the slough of despair in which cattlemen find themselves may cause a sharp swing away from the Republicans next year. The Republicans, who cannot afford to lose a single seat in the House and Senate, are determined to do everything possible to head off widespread farm deflections.

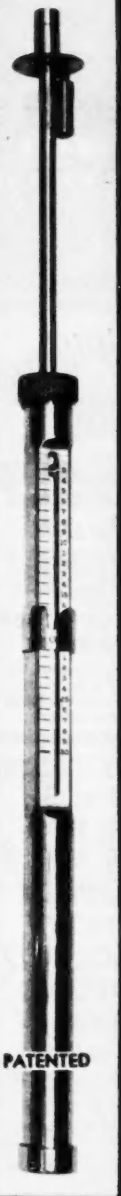
Although fruit growers are the least-subsidized (even indirectly) of all farm groups, congressmen are just as interested in their views as in those of any other farmer. They should not hesitate to attend the meetings of Congressman Hope—or other meetings called by their own congressmen—and speak their minds.

WHILE some congressmen are looking for soft spots among the voters, others are investigating conditions in other nations so that American fruit growers may have better overseas markets than they have enjoyed in recent years, particularly since the disruptions of World War II and the hanging of the Iron Curtain.

Representative Walt Horan (R.-Wash.), the Wenatchee apple grower, has gone to Europe and the Near East to visit Foreign Agricultural Service outposts and to make a thorough study of all problems affecting U.S. agriculture in relation to exports.

"The real answer (to farm surpluses, including apples) is to restore our historical world trade," Mr. Horan said, before he left on his trip, which will end with his return to Wenatchee about October 1. "This becomes the direct responsibility of those of us who appropriate the funds for the Department of Agriculture . . . I am certain that my findings will be beneficial to me personally, to my subcommittee of Agricultural Appropriations, to the Congress, and, I anticipate, to the great farm population of the nation."

FRUIT PRESSURE TESTER



• PEACHES APPLES PEARS •

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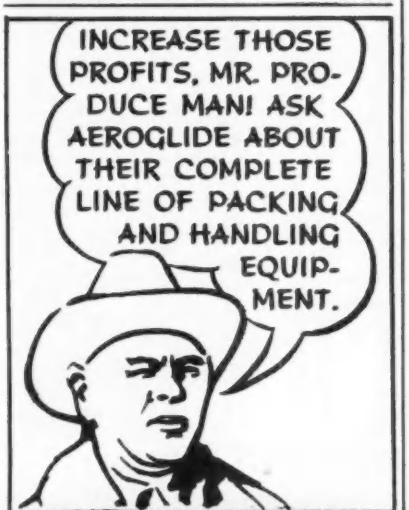

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What Stop-Drop Sprays Will Be Used in 1953?

A survey of apple producing states gives the recommended preharvest spray materials for the leading fall and winter varieties

By G. E. MATTUS
Virginia Agricultural Experiment Station

WHAT growth-regulating materials for the delay of apple drop are to be used in the commercial apple growing states in 1953? What materials will be used for trial purposes? What hormones are to be used on leading varieties in the different states? To answer these questions a stop-drop hormone spray survey was conducted by the author during July, 1953, on the use of these materials.

The stop-drop questionnaire was sent to the horticulture department at the state college or university of all the major and minor apple producing states. A total of 27 states replied.

It will be evident from the tabulated results that materials and recommendations vary greatly from state to state. This is to be expected because of the differences in apple varieties, or variations in climate and growing conditions, or in the stage of maturity at which fruit is picked, whether fruit is sold immediately or is stored, or other factors. For final and detailed apple stop-drop hormone spray recommendations growers should consult their state extension or research personnel.

1) What apple stop-drop materials are *to be used commercially in 1953?*

2,4-D—To be used in 6 states: Ind., Ky., Ohio, Ore., Va., Wash.

NAA—To be used in 24 states: Calif., Conn., Del., Ill., Ind., Kans., Ky., Maine, Mass., Mich., Minn., Mo., N.J., N.H., Ohio, Ore., Pa., R.I., Tenn., Utah, Va., Wash., W.Va., Wis.

2,4,5-TP—To be used in 21 states: Conn., Del., Kans., Ky., Maine, Mass., Md., Mich., Minn., Mo., N.J., N.H., N.Y., Ohio, Ore., Pa., Utah, Va., Wash., W.Va., Wis.

2,4,5-TA—To be used in 3 states: Conn., Mass., N.Y.

2) What apple stop-drop materials are *to be recommended in 1953 for trial purposes?*

2,4,5-TP—For trial in 4 states: Del., Minn., Ohio, R.I.

2,4,5-TA—For trial in 7 states: Conn., Ky., Mass., Mich., R.I., Utah, Va.

3) What are the stop-drop hormone recommendations for the leading fall and winter apple varieties in the apple producing states? Varieties reported in the questionnaire by less than three states were omitted from the tabulation given below.

STOP-DROP HORMONE RECOMMENDATIONS FOR 1953 FOR LEADING FALL AND WINTER APPLE VARIETIES

DELICIOUS

Recommended Hormones	No. of Applications	Concentration in p.p.m. per spray	Recommended by States of
NAA	1	5-10	Wis.
	1	10	N.J., Ohio, Va., Wash.
	1 or 2	10	Kans., Ky.
	2	10	Del., Ill.
2,4,5-TP	1 or 2	5	Del.
	1	10	Md., Ore., Utah, Wash.
	1 or 2	10	Kans.
	1	10-15	Va.
	1 or 2	10-20	Mich.
	1	20	Mo.
	1 or 2	20	Ky.

GOLDEN DELICIOUS

NAA	1	10	Ky., Va.
	1 or 2	10	Ill., Kans.
	2	10	Del.
	2 or 3	10	Mo.
2,4,5-TP	1 or 2	5	Del.
	1	10	Ohio, Va.
	1 or 2	10	Kans.
	1	20	Ky.

GRIMES

NAA	1	10	Ky., Va.
2,4,5-TP	1	10	Md., Ohio, Va.
	1	20	Ky.

JONATHAN

NAA	1	10	Ohio, Va.
	1 or 2	10	Kans.
	2	10	Ill.
2,4,5-TP	1	10	Utah, Va.
	1 or 2	10	Kans.
	1 or 2	10-20	Mich.
	1	20	Mo.

McINTOSH

Recommended Hormones	No. of Applications	Concentration in p.p.m. per spray	Recommended by States of
NAA	1	10	Maine, Ohio, R.I.
	1 or 2	10	N.H.
	1 or 2	10-20	Conn., Mass.
	1	20	Wis.
	2		Pa.
	2	10-15	Wis.
2,4,5-TP	1	10-20	Conn., Mass.
	1 or 2	10-20	N.H.
	1	20	N.Y.
	1 or 2	20	Mich.
	2		Pa.
2,4,5-TA	1	20	N.Y.

ROME

NAA	1	10	N.J.
	2	10	Ill.
2,4,5-TP	1	10	Utah
	1	20	Md., Va.

STAYMAN

NAA	1		Pa., Tenn.
	1	10	N.J.
	2	10	Del.
2,4,5-TP	1	15-20	Va.
	1	20	Ky., Md.
2,4-D	1		Ky.
	1	5	Ohio
	1	7½	Va.

WINESAP

NAA	1	10	Wash.
	2	10	Ill.
2,4,5-TP	1	10	Ore., Wash.
	1	10-20	Va.
	1	20	Ky., Mo.
2,4-D	1	5-6	Ind.
	1	7½	Va.
	1	8	Wash.

Mouse control machine with H. A. Merrill, district agent, U.S. Fish and Wildlife Service, demonstrating how poisoned bait is slipped under sod into artificial trail. Machine is attached to hydraulic lift of tractor in less than five minutes.

A NEW MACHINE FOR BETTER MOUSE CONTROL

By CHARLES L. STRATTON

FRUIT growers previewing the new mouse control machine, developed by the U.S. Fish and Wildlife Service for making artificial mouse trails in orchards, are quite enthusiastic. This machine is designed to eliminate the backbreaking and time-consuming labor involved in searching for natural mouse trails.

It looks like a large "L"-shaped angle iron and it can be attached to the hydraulic lift of practically any tractor with two bolts in less than five minutes. At the corner of the "L" a disk cuts the sod for a round mold that follows underground, forming an artificial mouse trail two and one-half to three inches below the surface. A workman sitting on the rear seat slips poisoned bait in the trail every four feet.

Follow Drip Line

No definite recommendations are being given out as the equipment is undergoing further tests in all types of soil. Tests in 13 northeastern states on orchards in good sod were promising. Best results were obtained by laying the artificial trail under the drip line of the fruit trees as soon as the fruit is harvested.

The tractor operator should drive in as straight a line as possible, raising the disk before turning at the end of the orchard. It isn't necessary to block off an orchard, just follow down each row under the drip line. Mouse activity is the greatest under the drip line.

Cubed apple treated with inexpensive zinc phosphide rodenticide is used in present tests for meadow mice. When pine mice are involved, the poison pail is divided and carries both cubed apple and poisoned oats. The mice are given a choice of baits by alternating a poisoned cube with a teaspoon of oats every four feet.

Although the poison is black and has a strong odor objectionable to humans, reasonable care should be used in handling and gloves should be worn.

It is estimated that 25 acres of orchards can be treated in one day with the machine. Under old hand methods, treatment of four to five acres was a good day. Even though sod may become packed down by rain the trail will remain. Early results have proved that if a good control job is done in the fall it isn't necessary to treat again the following spring.

Present experiments are being conducted with this test model in the midwestern section of the U.S. by representative Glen Oderkirk of Lafayette, Ind., under various soil conditions. The test machine cost approximately $175 to build.

Plans may be obtained on the mouse trail builder free of charge by writing to H. A. Merrill, District Agent, U.S. Fish and Wildlife Service, 59 Temple Place, Boston 11, Mass.

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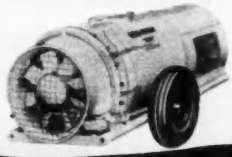

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By GLEN H. MITCHELL
Ohio Agricultural Experiment Station

TO increase your sales and profits prepackage your apples in various sizes of bags! The apple that will hardly move at any price in bulk—the 2¼-inch apple—will sell at the same price as larger apples when prepackaged! This is shown in an Ohio experiment on prepackaging apples at the orchard level and selling these apples on the retail market.

In 1949 Ohio apple growers became alarmed over declining prices and the declining position of their apples on the home market of eight million consumers. Western apples and other fruits and juices were becoming more dominant.

To help the apple industry of the Buckeye state the Ohio Agricultural Experiment Station assigned Dr. Ralph Sherman, assisted by Dr. John Sharp and Glen Mitchell, to conduct a prepackaging study. During the three-year period of this research project apple purchases by over 300,000 consumer buyers have been determined. Sand Hill Orchards, Carroll, Ohio, owned and operated by Harry Lutz, furnished bagged apples for the experiment.

The prepackaging records of apple growers were analyzed for two years. They showed that these growers liked consumer packaging because it: 1) moved more apples, 2) sold the 2¼-inch apple, 3) resulted in greater gross and net income, and 4) tended to stabilize prices and apple movement.

81c More!

The Ohio apple growers showed a gross return of 81 cents a bushel more for prepackaged apples than for bulk! Several producers estimated that it costs about 30 cents more to prepackage a bushel of apples than to sell a bushel in bulk.

The study was continued through the retail store and to the consumer. In self-service stores the idea is to sell at a low markup in order to move a volume of sales traffic through the store. Prepackaging fits right in with this concept. The American housewife for the most part wants her produce prepackaged so she does not have to wait for a clerk to weigh and wrap it.

In 1952 over 200,000 pounds of apples were offered during a 10-week experimental period. Produce sales in this short period totaled more than $300,000.

Three Sizes Increase Sales

The various sizes of bags and combinations of sizes offered during the three-year research program included: 5- and 10-pound; 3-, 5-, and 10-pound; 4-pound; 4- and 8-pound; and 3-, 4-, and 8-pound. The 10-pound bag, used to increase sales, sold over one-fifth of the apples in 1951. In 1952, when only two sizes of bags were offered, the 8-pound bag sold over one-third of the apples.

Sales of all apples as well as prepackaged apples increased when more than one size of bag was offered. This increase occurred both in total amount of apples sold and net apples as a per cent of produce sold and at a time when Rome Beauty apples were selling for 8 pounds for $1.07 and oranges for as low as 39 cents for an 8-pound mesh bag.

When bulk sales fell the prepackaged apples increased sales and moved rather consistently. In 1952 despite a high base period the stores offering apples in three sizes of bags increased total apple sales as a per cent of produce over the base period by 22.69 per cent; the stores offering two sizes of bagged apples had a 2.53 per cent increase; while the stores offering only one size of bag suffered a *decline* of 9.34 per cent in total apple sales as a per cent of produce sales from the base period.

When comparing the differences between these percentages the grower must consider that the produce sales of these stores amounted to over $300,000 in the 10-week experimental period in 1952; thus a small increase in per cent of produce sales represented by apples means a large increase in dollar value. THE END

How to Sell Apples

THE International Apple Association completed its 59th annual meeting on August 13, in Chicago. Over 1,000 growers, shippers, wholesalers, and merchants heard that a light crop of apples of 98.5 million bushels is expected. Of this amount about one-third will go to processors to be made into sauce, slices, juice, baby food, frozen apples, dried apples, apple butter or cider, vinegar, concentrates, etc.

At the time of the meeting the outlook pricewise seemed optimistic. However, statistical secretary Fred Burrows reported that pressure for low prices could affect the price of McIntosh in the Northeast and Delicious in the Northwest, both of which are expected to be in more plentiful supply than a year ago.

Some of the most interesting and instructive information on selling apples was delivered by Earl W. Carlsen, research agent for the Washington State Apple Commission.

Factual Information

Carlsen has been measuring the retail movement of apples in certain cities by arranging for a research worker to visit retail stores and record the number of pounds of apples purchased by 100 customers as well as condition of the fruit, price, and other factors.

In this way timely information is available each week on exactly how apples are moving and under what condition. Some of Carlsen's conclusions are remarkable. He says that price does not appear to be the important thing in selling apples. Also, apple sales in Los Angeles were at least twice as great as in Chicago.

The stores that sold the most apples moved more Delicious, Rome, and Winesap than the slower moving stores that handled a larger volume of Jonathan, McIntosh, and Golden Delicious. In Dallas, stores displaying apples in best condition sold 121 per cent more apples than those displaying fruit in poor condition. In Chicago, stores that kept bruised apples off their displays sold fruit 69 per cent faster.

Every grower should have a copy of Carlsen's report. A limited supply is available from the National Apple Institute, 726 Jackson Place, Washington 6, D. C.

FROM ORCHARD TO CUSTOMER . . .

SHIP APPLES... WITH SAFETY AND ECONOMY!

Specify FORT WAYNE

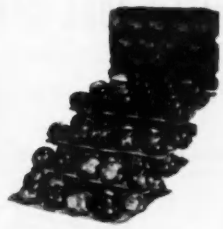
MOISTURETEX BOXES AND YOU SPECIFY . . .

KYS-PAK GIFT BOX
Ideal way to stimulate extra sales of your apples.

- Greater stacking strength.
- Superior moisture resistance.
- Extra sales appeal through colorful printing.
- Simple assembly without equipment.
- Easy inspection.

BUSHEL JUMBLE PACK
Fully locked bottom, four thicknesses over two-thirds of box.

KYS-PAK STORAGE TYPE
Withstands high humidity cold storage for long periods.



KYS-PAK
Cushions each fruit in its own protective pocket. Sets up easily into attractive display.

WRITE, WIRE OR PHONE TODAY!
Ask about other specialized apple boxes, too.

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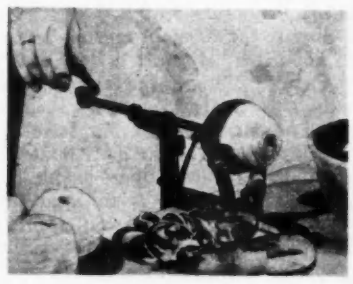
130 EAST DOUGLAS AVENUE • FORT WAYNE 1, INDIANA • PHONE: ANTHONY 4383
Plants: CHICAGO, ILLINOIS; HARTFORD CITY, INDIANA; PITTSBURGH, PENNSYLVANIA; ROCHESTER, NEW YORK

"So easy to prepare apples for eating or cooking!"

WHITE MOUNTAIN
APPLE PARER, CORER and SLICER



A few turns of the handle of the White Mountain Apple Parer, Corer and Slicer and an apple is prepared for eating, cooking, canning, baking or freezing. Not only pares, but cores and slices — all at once in 5 seconds. Leaves the fruit in spiral form which one cut of a knife transforms into dainty ring slices or shapes for pies, sauce, Apple Betty, puddings or salads. Razor-thin parings mean more fruit to eat. Fastens to table. Lasts a lifetime. Turns a tiresome task into a pleasant chore. Even a small child can operate it.

If your dealer can't supply, write direct. We will send postpaid on receipt of $3.75 (check or money order). Satisfaction guaranteed. Send 3c postage for luscious old time apple pie recipe.

GOODELL COMPANY, Est. 1875
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From engineering design to complete erection, United Cork Companies offers complete service on B.B. (Block-Baked) Corkboard through its chain of branch offices from coast to coast.

Each installation of United Cork Companies' B.B. Corkboard is *specifically* planned for the requirements of the individual fruit storage area. And each installation is followed up by United Cork Companies' engineers to assure full satisfaction to the fruit grower.

You are invited to discuss your low-temperature insulation requirements with us.

UNITED CORK COMPANIES

DEPARTMENT I-10

KEARNY, NEW JERSEY

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America's farmers and nurserymen have enthusiastically endorsed this pioneer "tiller-on-front" rotary tiller. It has been thoroughly tested and proven by tens of thousands of users in past seven years. And it still sells at the low, low 1947 price of $134, complete.

only $134

Many low-cost attachments convert ROTO-HOE to mow, trim and edge lawns, spray, pump, mulch, saw wood, and throw snow.

The new ROTO-ZEPHYR pump is an outstanding value—a 5 gallon high pressure piston pump which is easily moved around for small or medium jobs. This attachment complete with hose and gun can be added to ROTO-HOE for only $77. GET THE FULL FACTS. Write today for free color folder and name of nearest dealer. You'll be glad you did.

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Vacuum Bag Lifters

Right Angle Conveyors for Filled Bags

Combination Dry Brusher-Washer Units

Complete Grading units from 50 to 600 bushels per hour

The TRESCOTT Co., Inc.

Dept. A Fairport, New York

PEACH MATURITY PROBLEMS

(*Continued from page* 11)

tween increase in diameter and increase in volume. Thus, 100 bushels of peaches at the green period rapidly increase in volume to 125 or 130 bushels in the soft-ripe peach. This fact alone should cause a grower to consider the consequences of picking too green! The more technical studies indicate that there is a rapid increase in the sugar content of the peach during the "final swell," as well as in size and color.

We can now give consideration to the relationship between maturity and shipping range. Unfortunately, in some respects the advantage here lies with the green fruit. By "green" we mean that stage of maturity with only a very slight, yellowish cast to the background color. The depressing fact remains that peaches picked at this stage in maturity, although possessing the greatest shipping range and sufficient firmness to stand up in deeper containers, never develop a high color when held in storage at the *best* ripening temperature, which is probably about 65° F.

We have spent a great deal of time trying to determine the stage of development at which the peach will ripen properly. While there is need for a basic study of this sort, nevertheless it is possible, even under practical conditions, to pick a state of development two days beyond the green stage (which is here designated hard-ripe) without running into difficulty.

The hard-ripe stage has a long shipping rating and will develop acceptable color when held in storage at 65°. Such peaches, however, will never develop a color that will enable them to compete in the retail outlets with fruit picked firm-ripe or tree-ripe.

Most of the distributive trade prefers hard-ripe or firm-ripe maturity. However, the tree-ripe fruit (by this we mean fruit that is within two or three days of becoming soft on the tree) can be handled in the deeper containers, providing it is cooled as quickly as possible after picking and transported in the better-iced cars or trucks where a temperature of 45° or 50° is maintained.

One of the most promising recent developments, if used a very short time after picking, is the hydrocooling method of treating peaches. Hydrocooled peaches are put up in a two- or three-layer pack, or the individual cell container. Such containers enable the grower to get peaches through the trade channels to retail outlets at a stage of maturity that will be readily acceptable to the consumer.

We are operating at cross-purposes to some extent at this point. The distributive trade, being confronted with all sorts of distances and delays, prefers a firm pack. At the same time the firm pack may not be acceptable to the consumer buying in the self-help markets. Here is where the locally-grown peaches have a decided advantage in the competitive market. If the grower will make use of maturity and protective packs so that fuller development of both background and overcolor is obtained, then eye appeal, so necessary in the self-help trade, can go along with the pack to the market.

With this in mind an attempt has been made in provisional rating to ascertain the relation between consumer acceptance and maturity. The grower should fully appreciate that one of the basic approaches to marketing is supply and demand—and there never has been a demand for green peaches! A number of experiments show that firm-ripe and tree-ripe fruits move out of the market faster than fruit in the immature stages. This rating, however, applies primarily to peaches for fresh use or for freezing.

Producers should listen to folks behind the counter or to the food editors who are constantly advising consumers what to buy if they want to get a clear picture of the kind of peaches that will really "go" in the retail trade. While there is a gradual build-up of appreciation for the relationship between maturity and consumer acceptance, nevertheless, it is the *grower* who is in a position to give the consumer what she wants in the way of size, maturity, variety, and condition. Here is the way the movement of peaches through the retail trade *must* be speeded up. THE END

Fruit Production at a Glance

	Average 1942-51	1952	USDA Aug. 1, Est. 1953
	Thousand Bushels		
Apples	109,224	92,489	100,416
Eastern	46,282	38,790	41,317
Central	19,253	14,922	19,259
Western	43,689	38,777	39,840
Peaches	67,012	62,560	64,009
Cling, Calif.	20,577	19,127	21,877
Free, Calif.	11,380	11,251	10,418
Pears	30,396	30,947	30,479
	Tons		
Apricots	225,670	176,800	209,400
Cherries	198,251	217,930	229,740
Sweet	91,584	99,810	95,610
Sour	106,667	118,120	134,130
Plums	86,550	60,800	92,400
Prunes	296,430	220,800	236,400
Except Calif.	113,830	85,800	96,400
(Dry) Calif.	182,600	135,000	140,000
Grapes	2,874,200	3,173,400	2,773,600

HORT SECRETARIES SWAP REPORTS—While the secretaries are the hub around which the activities of the horticultural societies—the oldest agriculturab groups in the U. S.—function, the secretaries themselves have never had a get-together until this year. Their first meeting, at Roanoke, Va., during the recent annual convention of the National Apple Institute, when the above picture was taken by Secretary H. J. Rahmlow of Madison, Wis., therefore marks a milestone in the history of the societies.

The meeting was called by Secretary John Watson of Staunton, Va. Secretary C. W. Ellenwood of Wooster, Ohio, presided. The secretaries swapped reports on memberships, conventions, programs, magazines, and programs of work.

Above photograph shows, seated, from left—Mr. Ellenwood; Mr. Watson; J. W. Ruef, State College, Pa.; S. P. Hollister, Storrs, Conn.; Carroll R. Miller, Martinsburg, W. Va.

Standing, from left—H. L. Drake, Bethel, Kans.; Harold J. Hartley, Carbondale, Ill.; W. R. Martin, Columbia, Mo.; A. J. Farley, New Brunswick, N. J.; A. F. Vierheller, College Park, Md.; D. M. Dalrymple, Lockport, N. Y.; R. L. Klackle, Purdue University, West Lafayette, Ind.; and Mr. Rahmlow.

STATE NEWS

(*Continued from page* 15)

1930. Growers also inspected the new co-operative apple cold storage plant at Frelighsburg and the Provincial Spray Plots at Farnham.—*C. Lyman Calahan, Sec'y, Burlington.*

INDIANA—Dr. Clarence E. Baker, 56, associate professor of horticulture at Purdue University, died recently after an extended illness. He had been widely known to fruit growers for his work in soil management, fertilizers in orchards, and his studies in cold storage and keeping qualities of fruits.

Returns for peaches were better this year than last, and the apple crop is good. However, scab will reduce the pack of U.S. No. 1 apples somewhat, and codling moth damage is serious in southern Indiana.—*Ray Klackle, Sec'y, West Lafayette.*

MISSOURI—A. E. Weston, president of the Neosho Nurseries, Neosho, was killed in an automobile accident August 4. He had been active in horticulture for nearly 50 years.—*W. R. Martin, Jr., Sec'y, Columbia.*

WEST VIRGINIA—Charles L. Packard of Roaring Springs, Pa., was recently elected president of Appalachian Apple Service, the four-state growers' association with headquarters in Martinsburg, W. Va. Packard fills the shoes of Purcell McCue of Greenwood, Va., who was president of the organization since its inception in 1936 and who now holds the title of director at large. Others officers include James B. Bonham, Chilhowie, Va., vice-president; Malcolm M. Brown, treasurer, and Carroll R. Miller, secretary-manager, both of Martinsburg, W. Va.

MARYLAND—A certificate of merit was recently awarded W. Lee Allen of the W. F. Allen Co., Salisbury, by the University of Maryland. It was given for his outstanding work with strawberry nursery stock and for his contributions to Maryland fruit production, both in the field and in grower and organization affairs.—*A. F. Vierheller, Sec'y, College Park.*

IDAHO—Two well-known fruit growers died recently. Harold E. Yost of Wilder died as a result of a heart attack. He was 57. R. L. Morrison, 64, of Boise died while on a vacation trip in Washington. He homesteaded in the Central Cove Community near Wilder and raised fruit until he retired in 1950.—*Anton Horn, Sec'y, Boise.*

MINNESOTA—A good apple crop is in the making as a result of a favorable season. However, scab has been a problem in some orchards.

Dr. Leon C. Snyder, formerly extension professor of horticulture at the University of Minnesota, on July 1 assumed his new duties as head of the department of horticulture at the university.—*J. D. Winter, Sec'y, Mound.*

WISCONSIN—The Wisconsin Apple Institute has employed a home economics graduate of the University of Wisconsin as publicity director. Her headquarters are in the office of the horticultural society at Madison. She is already engaged in working through county home agents with radio, television, and newspaper releases on apple varieties, their uses and value, and how they may be used in cooking. A new edition of the popular recipe book, "Use Wisconsin Apples—52 New Ways," is being printed—18,000 copies as compared to 15,000 distributed last year.

Officers of the Wisconsin Apple Institute elected by the board for the coming year are Gilbert Hipke, New Holstein, president; Henry Mahr, Caledonia, vice-president; Armin Frenz, Cedarburg, recording secretary-treasurer; H. J. Rahmlow, Madison, executive secretary.

The cherry crop in Door County is somewhat better than last year, estimated at about 28 million pounds.—*H. J. Rahmlow, Sec'y, Madison.*

BOOKS FOR YOUR ORCHARD LIBRARY

1. GENERAL HORTICULTURE, **by James S. Shoemaker** (author of Small Fruit Culture). Covers all phases of horticulture—fruits, vegetables, flowers, landscape gardening and design $6.00

2. HOW TO MAKE A LIVING IN THE COUNTRY, **by Fred Tyler.** Ninety-six pages of ideas for making a living in the country. The eight pages on roadside marketing are worth the price of the book $1.00

3. THE HIVE AND THE HONEYBEE, **by Roy A. Grout.** The whys and wherefores of beekeeping. Explains the function of the honeybee in pollination $4.00

4. INSECTS, **by Herbert S. Zim and Clarence Cottam.** A handy guide to familiar American insects. Beautiful drawings of 225 insects in full color. $1.00

5. GRAPES AND WINES FROM HOME VINEYARDS, **by U. P. Hedrick.** Complete information about American grapes and wine making, including equipment needed.....$4.00

6. DESTRUCTIVE AND USEFUL INSECTS, **by Metcalf, Flint, and Metcalf.** A completely revised and up-to-date edition of this famous book. Valuable descriptions and photographs of all fruit insects $10.00

7. DWARF FRUIT TREES, **by Lawrence Southwick.** A complete description of the selection, planting, and cultivation of dwarf fruit trees.....$2.50

8. PRINCIPLES OF WEED CONTROL, **by Ahlgren, Klingman, and Wolf.** Shows how to control all types of weeds scientifically. Discusses thoroughly the principal control chemicals. $5.50

Sent postpaid on receipt of check or money order.

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Gentlemen: Please send these books:

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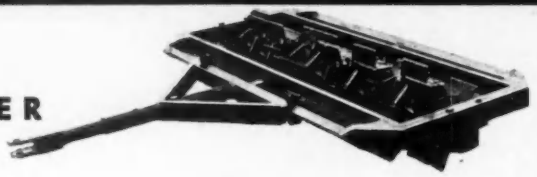
The Culti-Cutter

For SUMMER



In Sod Orchards

To:

Speed Moisture Penetration
Promote Better Soil Aeration
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In Cultivated Orchards

To:

Reduce Severe Root Damage
Prevent Topsoil Erosion
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This versatile, high speed, tillage implement controls cover crops without destroying them. See the Culti-Cutter now.

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EQUIPMENT CO.
4312 Main St. YAKIMA, WASHINGTON

For information and prices in area east of Mississippi River write Michigan Orchard Supply Co., Dunkley Ave., South Haven, Michigan

AUTOMATIC ROTARY HOE

A rotary hoe which cultivates in the row. Designed for vineyards, blueberry planting and row crops such as raspberries, currants, gooseberries, brambles, etc. Operates automatically. A trigger actuates the hydraulic mechanism which pulls the cultivating head away and around the plants or posts. Eliminates hand hoeing.

Write for descriptive folder

FRIDAY TRACTOR CO.
HARTFORD, MICHIGAN

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Compare the Hale Centrifugal Sprayer for weight—makes for easier handling with smaller tractors.

Write for Bulletin #302. State size of grove or orchard.

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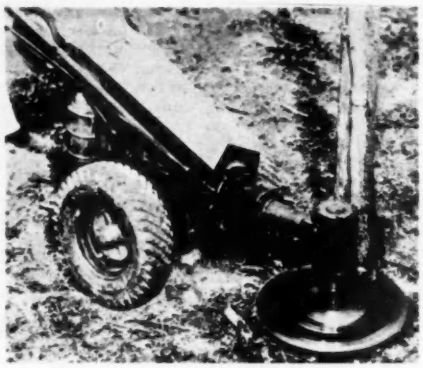
... there's a Stauffer dealer near you!

NEW FOR YOU

A Grower Reports

A few weeks ago a well-known grower told us of his success with Gravely power equipment. Three years ago he purchased a Gravely tractor to mow cover crops close to his fruit trees within the orchard rows, and, as a second job, to properly cultivate his berry and vegetable acreage. The machine performed so well that he purchased several Gravely attachments.



The combination rotary and chain saw pictured above quickly paid for itself. The rotary saw, 18 inches in diameter, did a perfect job of felling a block of Cortlands which had become non-productive. It was no job to attach the Gravely chain saw and cut the felled trees in relatively short pieces for quick and easy removal. In less than 10 days the land was fully prepared for planting a new block of McIntosh.

Our friend had heard about the post hole digger, shown above, available to all Gravely owners, and he bought this tool which he used to make holes for planting the McIntosh. This one operation more than paid for the Gravely equipment. The tractor has a 5 h.p. motor designed by Gravely engineers. It includes two forward speeds and a reverse gear.

Gravely dealers are trained to give you good service, and if you are looking for a low-cost unit which does a fine job and lasts for a long time, write Cecil Brake, Gravely Motor Plow & Cultivator Co., Dunbar, W. Va., for details on Gravely.

- **GRAVELY EQUIPMENT**
- **"SC" TRACTOR**

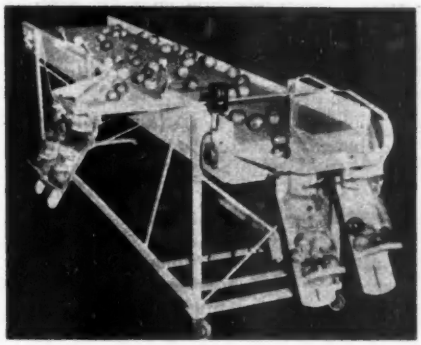
It's New—It's Big

The new "SC" tractor is ideal for fruit growers. It gives 15 per cent more power with improved fuel economy. Dual valve constant hydraulic control, operated by twin levers, is standard equipment. If you are considering a new tractor, write F. A. Wirt, J. I. Case Company, 700 State St., Racine, Wis., for details.

Your Man Friday

A fruit and vegetable grower in Ohio has made his Roto-Hoe equipment pay for itself. He has used his Roto-Hoe for two seasons, and recently he purchased a Roto-Zephyr sprayer to fit his Roto-Hoe. The new Roto-Zephyr delivers pressures up to 150 pounds, is ideal for many small spraying jobs, and costs only $77. For full particulars, write Howard Ober, Roto-Hoe Sprayer Company, Newbury, Ohio.

Fills All



A Michigan grower has designed a packaging machine which is adjustable to any kind of bag from three to eight pounds. The machine is fully cushioned with foam rubber to avoid bruising and can be readily attached to any conventional packing line. If you would like details, write William Tautz, Ganges, Mich.

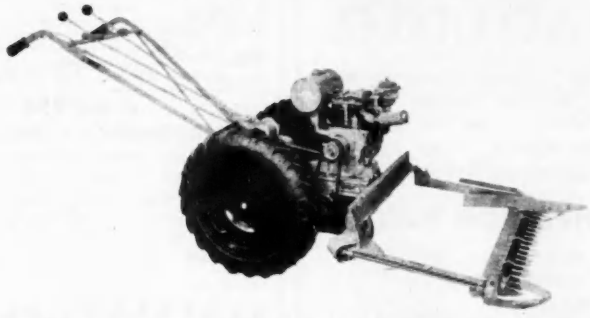
GARDEN TRACTOR BARGAIN

BUY A NATIONALLY KNOWN GARDEN TRACTOR NOW

and SAVE up to $75.00

Here is a chance of a lifetime! A well known garden tractor manufacturer has many brand new tractors in his warehouses which he must sell to make way for new production. You can buy the tractor you need at greatly lowered prices.

		Your Price
1½ hp.	$190.00	$142.50
2½ hp.	220.00	165.00
2½ hp. with reverse	295.00	221.50
3½ hp.	265.00	198.50



These tractors carry the manufacturer's full warranty and are guaranteed to be brand new. They can be purchased at the following warehouses:

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34 Mechanic Street
Westfield, Massachusetts

Farm Tractor & Implement Co.
270 Center Street
Auburn, Maine

Independent Motors
33 Mansfield Street
Bethel, Connecticut

Still's Nursery & Tractor Co.
192 Mammoth Road
Manchester, New Hampshire

Tractors, Incorporated
128 Narragansett Avenue
Providence, Rhode Island

W. Case Benham
Niagara Street
Canandaigua, New York

Huntington Lawn Equipment
203 Broadway
Huntington Station, L.I., New York

Harry W. Armes
Box 67
Little Valley, New York

Poughkeepsie Supply Co.
168 Smith Street
Poughkeepsie, New York

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Abele Farm Equipment Corp.
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Cornwell's Farm Supply
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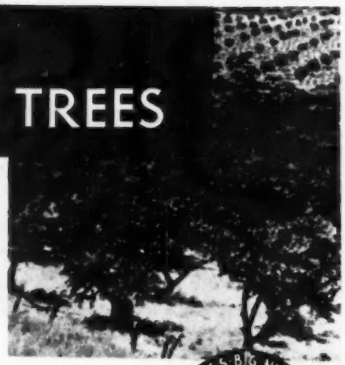

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APPLE PRICES

(Continued from page 14)

gresses that is important. Your *profits* from storage, as compared with selling at harvest, are determined by this *change* in price *less* the costs of storage.

Costs of storage vary from farm-to-farm and city-to-city, and you as a grower will know what they are for you. But how about prices? All of you are familiar with the terms "strong" market and "weak" market. You use the term "strong" when prices are good and apples are moving. A "weak" market has low prices and slow sales.

Now, if a weak market prevails and you expect a strong one to develop, withholding sales would seem like a good bet. Naturally if prices are good and you expect them to soften you would push sales.

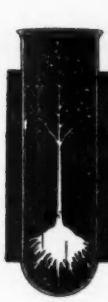
The analysis of apple prices at Michigan State was begun in the hope that weak, strong, or normal market situations could be detected in the fall and anticipated for the rest of the season. Growers could then use the information to help them decide whether or not to store apples.

Monthly prices were analyzed for the years beginning with 1923. The problem was to find out what factors caused prices to change from one year to another for each month. That is, the question was posed as, "What are the forces affecting September apple prices, October apple prices, and so on for each of the months through April?"

Once these forces were found, prices could be predicted for each month. Market prices could then be compared with these predicted prices in order to discover whether the market was weak, strong, or about normal. Two forces, the buying power of persons in the U.S. and the size of the U.S. commercial apple crop, accounted for more than three-fourths of these price changes.

Looking at the 1952-53 season we see that prices were about as expected in September and the chances were that only normal returns could be expected by storing (Figure 1). In October, the market was strong with prices more than a dollar a bushel above those expected. It was also apparent that if the same price prevailed in the following months, the market would continue to be very strong.

Therefore the chances appeared slim that storage would be profitable. This conclusion proved true when the market price failed to rise by more than enough to cover costs for the remainder of the season, and market prices got closer and closer to the expected levels.



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Looking towards this year we can again predict monthly price movements for Michigan (Figure 2). These price predictions are based upon the March, 1953, levels of income and an estimated (as of July 1) apple crop of 102.3 million bushels. When the average farm prices become available from the Crop Reporting Service, they can be compared with these levels to judge the strength of the market.

Each year any unusual factors should be considered. Such things as the quality of the crop, the location of the crop, storage holdings, and the like may account for a particularly strong or weak market situation. But used properly, these results can be another one of those tricks up a grower's sleeve that may help him answer the question, "Should I store or sell my apples?" THE END

Leaf Blight—Leaf Spot

(Continued from page 15)

in its center. When the spots are numerous the leaves are killed and drop. Leaf blight is particularly serious in nurseries, where the young seedlings can be killed as the result of the premature defoliation.

In addition to affecting the leaves, the leaf blight fungus attacks the fruit, producing circular spots, which are at first red but later become dark brown or almost black. When the spots are numerous the skin is roughened and the fruit frequently cracks before it matures. A serious attack of the disease impairs the market value of the fruit.

The leaf blight fungus may live over winter in the spots on the fallen leaves, but detailed studies indicate that spore masses formed during the winter on twig cankers are the primary source of spores that start the disease anew in the spring.

Control. Lime sulfur and Bordeaux mixture will control this disease but are very apt to produce either serious scorching (sulfur injury) of the leaves or russeting (copper injury) of the fruit. Both these materials have been replaced by ferbam, an organic fungicide.

This material used at the rate of one pound in 100 gallons of water will give excellent control of the leaf blight fungus without scorching the leaves or russeting the fruit. It is preferable to make the first application before any spots appear, but the disease can be controlled by waiting until the first spots appear on the leaves and then spraying the tree thoroughly with ferbam.

Two or three additional sprays at intervals of two to three weeks will usually be sufficient to keep the leaves and fruit free of the disease.

Leaf Spot

Leaf spot is also sometimes called septoria leaf spot. This fungus produces dark, angular spots, with light gray centers, containing numerous black dots (spore-producing organs). The light gray centers and the numerous black dots serve to distinguish this disease readily from the one caused by the leaf blight fungus. The leaf spot fungus does not attack the fruit. Leaf spot is of little importance on properly sprayed trees. The sprays recommended for leaf blight hold this disease in check.—*John C. Dunegan, USDA.*

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Advertisement

From where I sit ... *by* Joe Marsh

A Little Headwork Saves a Lot of Footwork

"I don't ever aim to give up fishing," Pappy Hayes said one day—"but the older I get the less I like hiking over to Pike's Creek. Guess I'll have to bring the fish nearer to *me*."

So Pappy got his nephew to bulldoze down about three acres of bottom land. Then he dammed up the little stream there.

He wrote the U. S. Fish and Wildlife Service, in Washington, and got some "blue gills" and bass to stock it—free. Pappy's idea wound up giving him (and us) just about the best fishing pond in the county . . . right in his own back yard.

From where I sit, Pappy may be older than some of us but his mind is active—and open. He's ready to listen to anybody with an idea. That's why he and I can talk on any subject—sometimes about his preference for buttermilk and mine for beer. And though we disagree, we respect each other's opinion. That's neighborliness without a "catch" to it.

Joe Marsh

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CALENDAR OF COMING MEETINGS AND EXHIBITS

Sept.—Illinois State fruit festival, Murphysboro.

Sept. 23-25—Florida Fruit and Vegetable Association annual convention, Casablanca Hotel, Miami Beach. Association headquarters—4401 East Colonial Drive, Orlando, Florida.

Sept. 25-26—Illinois State Fruit Queen Festival and Murphysboro Fall Apple Festival Murphysboro.—Harold J. Hartley, Sec'y, Carbondale.

Sept. 26—Sixth Annual Cranberry Festival, Edaville Plantation, South Carver, Mass.—L. R. Williams, Merch. Mgr., American Cranberry Exchange, 5 S. Sixth St., New Bedford, Mass.

Oct. 5-7—Texas Citrus and Vegetable Growers and Shippers annual convention, Shamrock Hotel, Houston. Association headquarters—306 E. Jackson St., Harlingen, Texas.

Oct. 5-8—Produce Prepackaging Association third annual exposition, Chase Hotel, St. Louis, Mo. Robert A. Cooper, Mgr., 1250 E. Main St., Stamford, Conn.

Oct. 19-23—National Safety Congress and Exposition, Palmer House, Chicago, Ill.

Oct. 22-31—National Apple Week.—National Apple Week Assn., 1302 18th St. N.W., Washington 6, D.C.

Oct. 26-31—National Honey Week.—Harriett M. Grace, Director, American Honey Institute, Commercial State Bank Bldg., Madison 3, Wis.

Nov. 3-5—Florida State Horticultural Society 66th annual meeting, Daytona Beach.—E. L. Spencer, Sec'y, Bradenton.

Nov. 5-6—Minnesota Fruit Growers Association and Wisconsin State Horticultural Society joint annual meeting, La Crosse, Wis.—J. D. Winter, Sec'y, Mound, Minn.

Nov. 18—Iowa Fruit Growers Association annual meeting, Iowa State College, Ames.—R. G. Raines, Sec'y, State House, Des Moines.

Dec. 1-2—Oklahoma Pecan Growers Association annual meeting, Chandler.—Fred LeCrone, Asst. Sec'y, Dept. of Hort., Stillwater.

Dec. 3-4—Oregon State Horticultural Society 68th annual meeting, Oregon State College, Corvallis.—C. O. Rawlings, Sec'y, Corvallis.

Dec. 7-9—New Jersey State Horticultural Society annual meeting, Claridge Hotel, Atlantic City.—A. J. Farley, Sec'y, New Brunswick.

Dec. 7-10—Entomological Society of America annual meeting, Biltmore Hotel, Los Angeles, Calif.—Dr. Ernest N. Cory, Div. of Entomology, U. of Maryland, College Park.

Dec. 8-9—Connecticut Pomological Society annual meeting, Hotel Bond, Hartford.—Sherman P. Hollister, Sec'y, Storrs.

Dec. 10-11—Nut Growers Society of Oregon and Washington annual meeting, Marine Room, Multnomah Hotel, Portland, Ore.—C. O. Rawlings, Sec'y, Corvallis.

Dec. 10-11—Tennessee State Horticultural Society annual meeting, Andrew Jackson Hotel, Nashville.—A. N. Pratt, Sec'y, 708 Employment Security Bldg., Nashville, Tenn.

The Orchard Home

IT'S jelly and jam preserving time. Think of those long winter months ahead, and you will be glad that you made all those different kinds of flavorful jellies and jams. And there are so many ways you can use preserves. For instance, toast 'n jam, hot buttered rolls with a tart jelly, and you will certainly want to make some apple mint jelly to go with meat (it is particularly good with lamb). And, have you tried dressing up a dish of cottage cheese with a red jelly?

Featured this month is orange marmalade. Here is a wonderful preserve which is not too sweet and is easy to make. Put some of this marmalade up in extra special fancy jars to give to friends at Christmas. They will love it!

Below is the recipe for orange marmalade, also other preserve recipes to help you fill your fruit shelves.

ORANGE MARMALADE

4 large oranges
2 lemons
Water
1 teaspoon salt
Sugar (about 3 cups)
Corn syrup (about 3 cups)

Cut oranges and lemons in very thin slices. Remove seeds, use all the peel, pulp, and juice. Measure fruit, pressing down firmly. For each cup fruit, add 3 cups water. Combine fruit and water; boil rapidly 40 minutes. Measure mixture. Measure separately ¾ cup combined sugar and corn syrup (using ½ sugar and ½ corn syrup) for each cup fruit mixture; reserve. Boil fruit rapidly 20 minutes longer; add salt, sugar and corn syrup mixture. Continue boiling rapidly 20 to 30 minutes or until thick and clear, stirring frequently to prevent scorching. Cool mixture about 5 minutes before pouring into jars to distribute peel evenly throughout. Stir. Pour into hot sterilized jars or glasses. Cover with paraffin. Makes 6 pints.

QUINCE BUTTER

2 cups quince pulp
2 cups sugar

Cut quinces into quarters. Remove blossom end. Barely cover with water and cook until done. Press through sieve. To 2 cups pulp add 2 cups sugar. Cook over low heat, stirring frequently, until very thick. Pour into glasses, seal.—Olive Carlson, Crete, Ill.

PEACH AMBER

3 pounds peaches
3 oranges
3 pounds sugar

Peel and slice peaches into a large kettle. Wash oranges and slice very thin (peeling and all). Add sugar to mixture and cook until thick and amber in color. Seal hot.—Mrs. Curtis S. Link, Columbus, Ohio.

CRANBERRY CONSERVE

1 quart cranberries
1 cup chopped raisins
2 oranges, ground
3 cups sugar
¼ cup chopped walnuts

Wash cranberries. Cover with water. Heat to boiling and simmer until tender. Put through sieve or food grinder; add chopped raisins and ground orange which have been cooked over a low heat for 10 minutes. Add sugar to mixture and simmer over low heat until thick. Stir in walnuts. Chill before serving or seal in hot sterilized glasses.—Mrs. A. Kantz, New Ulm, Tex.

APPLE MINT JELLY

1 cup apple juice
1 cup mint leaves (packed tightly)
¾ cup sugar
1 cup boiling water

Pour boiling water over mint leaves and allow to steep one hour. Press juice from leaves and add 2 tablespoons of this extract to apple juice and sugar. Let boil until syrup jells. If desired, tint with green vegetable coloring. Pour into hot jelly glasses and seal.

PEAR HONEY

4 cups finely chopped pears
3 cups sugar
Juice of 1 orange
Grated rind of 1 orange
½ teaspoon nutmeg

Pare, core, chop, and measure pears. Put into kettle and simmer gently for 10 minutes. Add sugar, orange juice, rind, and nutmeg. Boil until thick. Pour into hot jars and seal at once.

PARADISE JELLY

20 apples, cut in eighths
2 quarts cranberries
12 quinces, cut up fine

Wash fruit. Remove seeds and core of quinces. Cover fruit with water and boil until tender. Strain through jelly bag. Boil 20 minutes. Add 1 cup sugar for each cup juice. Boil until mixture jells. Pour into sterilized glasses and seal with paraffin.—Mrs. C. A. Steere, Greenville, R.I.

GRAPE JAM

Wash and stem grapes. Put in pan. Bring to a boil and boil slowly until seeds are removed from pulp. Put through sieve. To 3 cups juice add 4 cups sugar. Put juice on stove and bring to a full boil. Add sugar and cook until sugar is dissolved. Take off stove. Put in glasses and when cool cover with paraffin.—Mrs. Roman Gerth, Oshkosh, Wis.

ORANGE-APPLE MARMALADE

2 quarts apples, peeled and chopped fine
2 quarts sugar
1 lemon, rind and juice
1 orange, rind, pulp, and juice

Extract juice from lemon and orange. Put rind through food grinder. Combine all ingredients, cook until apples are done. Seal. Makes four pints.—Mrs. Charles Meyer, Ainsworth, Neb.

THE VERSATILE DRESSMAKER SUIT

The complete fashion picture is embodied in the lines of this design, which combines the tailored touches with the softly feminine. The softened lines are seen in the collar and revers, the naturally rounded shoulder lines, the easy dropped sleeve, the moulded peplum, and the released pleats at the skirt waistline. An unusual touch is found in the tulip shaped pockets of the skirt. This design can lend itself to varied accessories—the tailored shirtwaist for severe effects, the gay scarf for complimentary color contrasts, and the glittering jewelry for late date fashion. Advance pattern 6103. Sizes 12 to 20. Price 35 cents.

American Fruit Grower

RICHARD T. MEISTER, *Editor*
H. B. TUKEY, *Associate Editor*

• *Fruit for Health* •

Organized Labor and Perishable Foods

"65 CANNERIES SHUT AS 22,000 JOIN IN UNION WALKOUT" screamed the headlines in California newspapers on Tuesday, July 28. And then the reports continued with a full discussion of the threat of a statewide cannery strike to take effect just as California's ripening crops began to get under full swing.

The next paragraphs quoted from the representatives of the AF of L, from the California Processors and Growers, Inc., and from the office of Federal Mediation, each giving its side of the controversy. An appeal is sent by the Canning Peach Association to Secretary of Agriculture Ezra Benson calling attention to the fact that "during the next 60 days nearly 1,000,000 tons of fruit will be offered to canners in California with a total raw fruit value of approximately $60,000,000."

Another telegram is to President Eisenhower asking him to invoke the Taft-Hartley Act and force the strikers to return to work for a 75-day "cooling-off" period so as to keep the factories in operation until the peak of the packing season was over.

All of this has a too familiar ring. It is the same old pattern. It represents a game in which everybody stands to lose—the grower, the canner, the worker, and the consuming public. Of these the grower and the public stand to lose the most. It becomes a brutal game of force and terror which should have no place in modern society.

When will the game end? Is it too much to expect interested groups to get around the table and resolve differences without resorting to force which causes the innocent to suffer? How can we expect to resolve international differences when right here in our midst we see such wanton tactics employed? Is there no method of avoiding these recurring crises at critical times?

Seen from a high level and a detached theoretical viewpoint, the right to strike is a weapon which is justified in the constant struggle of a group to better itself. The tragedy is that this does not remain abstract or theoretical very long. Soon Mary does not go to college, or the church does not get a new organ, because the peaches and figs were not processed. In other words, a highfalutin bit of theory and economic shibboleth becomes a social problem in which human beings are crushed.

It makes no difference who is right and who is wrong. Maybe everybody is wrong. But such situations should have no place in America today. When the storm is over all will be forgotten, but it should not be. It is too serious. The perishable food industry is too easy a prey to allow such happenings again and again.

It is time that leaders in the industry met this challenge head on. Somehow, somewhere there must be leadership which can get these groups together and iron out differences well in advance of the harvest season. Many have tried and failed but this is no reason for accepting a defiant attitude. All parties concerned are human beings, all are dependent on one another. All stand to lose. The time to begin is right now.

A Sign of The Times

WORD from Pennsylvania tells of a new instrument called a Glossmeter. It is used by research workers in determining the effect fungicides have on apple finish, but in a larger sense its use results from consumers' preference for good looking fruit. What a change has taken place since the days of the Russet apples. Everything must be shiny these days, but we hope consumers never go so far as to forget the quality under the skin.

Fruit Talk

An **English** correspondent with an orchard underlain with heavy limestone writes: "Our bore hole was only yielding 12,000 gallons. We put 14 tons of concentrated hydrochloric acid down the hole last week and now we are getting 27,000 gallons per hour. Magic!"

Molybdenum is gaining more attention as an essential **minor element.** Deficiency symptoms may appear when the plant contains less than one part in 10 million.

Rootstocks with a large amount of bark in proportion to the wood are the most dwarfing. **Malling IX,** the most **dwarfing** of the apple rootstocks, is a typical example, with a thick, soft bark that mice thoroughly enjoy.

The **quality** of the **water** used in **irrigation** is of tremendous importance in the **West.** For example, it has been shown that water in Texas traveling roughly 300 miles downstream increases in salt content twelvefold, from .28 ton per acre-foot to 3.58 tons per acre-foot of dissolved salts.

Hill of **Ottawa, Canada,** has shown that bitter pit is severe in the Lawfam variety of apple when foliage nitrogen is above 2.3 per cent, reaching 50 to 100 per cent bitter pit at 2.61 per cent and dropping to almost none at below 2.3 per cent.

Molybdenum deficiency may reduce the **ascorbic acid** content of a crop to only 30 per cent of the normal level. Injections of molybdenum into a deficient plant may increase the ascorbic acid content to nearly normal levels in three to five days.

Smoked ripe olives, developed by **Dr. W. V. Cruess** of the **University of California,** promise to become a regular item on grocery shelves. The high oil content of the olive makes it a "natural" to absorb and retain the smoky aroma and flavor.

Commenting editorially on the new course in **horticultural therapy** held at **Michigan State College,** an English publication says, "If horticulture and health go hand in hand, then why the heck do growers go so gray so quickly?"

Mulch has been shown to have extraordinary value in orcharding, but when the mulch is of such a nature as to form a **thatch,** the results are not so gratifying. Writes a correspondent: "As picturesque as thatch may be on the roof of an old-world cottage, it is troublesome on lawns, putting greens, pastures, or any area where grass is grown year after year. Thatch is an iron curtain that nothing can penetrate. Thatch is a roof over the soil that sheds water. **Sweeten** the **soil** and organisms will destroy thatch. **Fertilizers help.** Spike-discing allows air and moisture to penetrate."

The **Shoreham, Vermont, Co-operative Apple Producers, Inc.,** have had excellent results with modified atmosphere storage for McIntosh held until May at an increased value of a dollar a box, just because "they had that crisp McIntosh flavor." —H.B.T.

Coming Next Month

- New Fruits Worthy of Trial
- The Peach Variety Situation
- A New Dwarfing Stock—The Malling-Merton Series
- Don't Miss Out on Roadside Profits!

"Whether It's Delivering Milk or Putting Out Fires —CHAMPION SPARK PLUGS Get Us There in Time"

Says—

David G. Tate (L) who, with his brother-partner John P. Tate, Sr., owns and operates THE TRIANGLE DAIRY, Boise, Idaho.

Back in 1879 David Gekeler, grandfather of David and John Tate, came out to Boise from Boulder, Colorado, in a covered wagon. The 160 acres he obtained on a timber culture claim—and on which he raised 10 acres of trees to cinch the claim—is now part of the beautiful and productive 343-acre Triangle Dairy Farm.

This very modern dairy was started in 1922 with delivery equipment consisting of one Model T Ford truck. Today, Triangle serves its third generation of Boise customers with 16 retail trucks, 2 heavy units—for picking up milk from other Grade A dairy farms—and a supply truck for shuttling supplies to retail trucks. The farm equipment consists of dump trucks, a feed truck and 5 tractors—plus, of course, the famous Triangle Dairy fire truck.

Says Mr. David Tate, "Champions have been our first choice in spark plugs for many years. They have the dependability that's so important when you're delivering perishable products the year 'round, on a regular schedule in all kinds of weather. We had Champions in our first Model T and Champions are in our entire fleet today. That goes for our tractors and other farm equipment, too. In fact, from the fire truck on through our personal cars, we're solid for Champion."

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

Triangle Dairy built its own fire truck on a Studebaker chassis. Originally intended only for fire protection on the farm, this Champion-equipped unit now helps serve the whole area and is a great ambassador of good will for the dairy.

The dairy herd of some 175 head is about equally divided between Holstein and Guernsey—mostly registered animals. Triangle also buys milk from other Grade A dairy farms in the area.

The farm's entire yield of pasture, silage and hay goes for milk production under Triangle's plan of vertical diversification.

Boise Valley, in which the Triangle Dairy Farm is located, was known to the Indians as Peace Valley. This valley was so named because, by agreement, either tribe in that area could bring its ailing for treatment at the valley's warm springs without fear of attack by the other.

DEPENDABLE

CHAMPION

Spark Plugs

WILL MAKE ANY ENGINE RUN BETTER!

The present Champion-equipped delivery fleet is a far cry from Triangle's first Model T. The dairy's last horse was retired in 1928.

BOOST YIELDS, CUT COSTS...

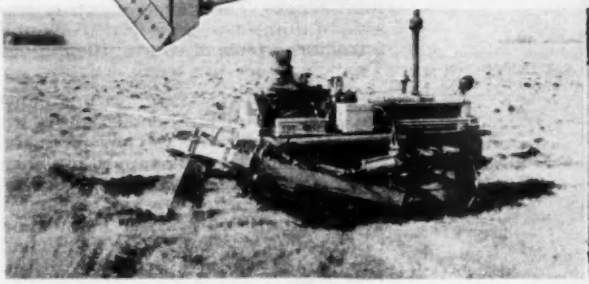
BY FARMING THE CAT* TOOL BAR WAY!

HERE'S HOW YOU CAN DO IT: Could you have used more pasture or crop ground this year? Were your crops and livestock short on water? Did a wet spring get your crops off to a slow start?

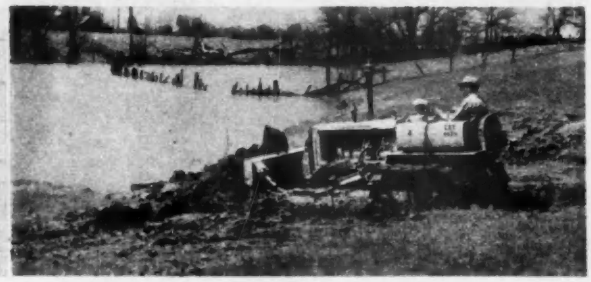
If you answered "yes" to any of these questions, you'll gain a boost by farming the Cat Tool Bar way! Cat Tool Bar farming has helped others increase their production as much as 25% and it can do the same for you. Read here how it will fit your farm picture. See your Caterpillar Dealer for more details.

5-minute change from dozer to subsoiler!

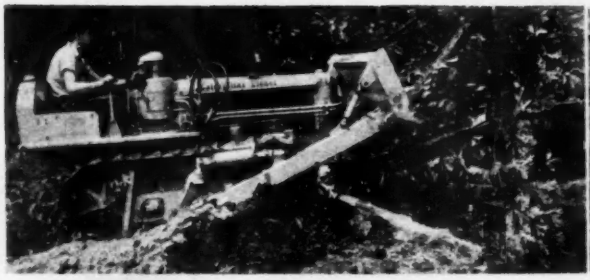
1. Just remove cotter keys and pull 4 pins to drop blade.
2. Swing draft members to the back.
3. Engage beam clamps and reinsert 4 pins.



DRAIN LAND, SHATTER HARD PAN... you can often avoid the cost of tiling by subsoiling with a Cat mole-ball-subsoiler. Increase moisture and root penetration, water retention. Costs about ⅓ as much as ordinary subsoilers... only $79.05†.

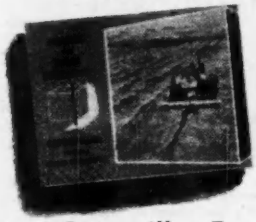


BUILD PONDS FOR STOCK, IRRIGATION, PLEASURE... this D2 and Tool Bar Dozer move a cubic yard a minute over a 50 foot push. Build terraces, ditches, grassed waterways, dams to control water, stock trails, roads. Clear snow, work in mud.



CLEAR LAND WITH A CAT TOOL BAR DOZER... clear your waste land and fence rows with your own farm power, and save. Cat Tool Bar Blade costs only $268.00†... about ¼ the price of ordinary dozers.

CULTIVATE, RENOVATE PASTURE... double, even triple pasture carrying capacity by cultivation, fertilization. Heavy-duty cultivator shanks at about ½ the cost of regular cultivators can penetrate as much as 9" where required.



FREE: Tool Bar Farming Booklet tells how you can get the most out of your farm by working **all 3** dimensions! Write Caterpillar or see your Dealer for your free booklet.

†Prices F.O.B. Peoria, Illinois. Subject to change without notice. Tool Bars and tools sold separately.

Caterpillar Tractor Co., Peoria, Illinois

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Diesel Farm Tractors

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